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ABSTRACT

This is the report of the 1967 Conference of the Western Association of Graduate Schools. The first general session of the meeting dealt with the plight of the graduate dean and his lack of power in the graduate school. The second general session offered information concerning recent institutional research on graduate education including evaluative studies by students of the graduate curricula. The third session was concerned with administrative aids such as computer information systems, and the fourth general session addressed the topic of special problems for research on graduate education. The fifth session was a business meeting at which new officers were elected and various recommendations made, and the final session dealt with financial aid to graduate education. (HS)

ED 059683

PROCEEDINGS

NINTH ANNUAL MEETING

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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March 6-7, 1967

Honolulu, Hawaii

Western Association of Graduate Schools

INSTITUTIONAL RESEARCH ON GRADUATE EDUCATION

March 6 - 7, 1967
Honolulu, Hawaii

Proceedings

Ninth Annual Meeting

WESTERN ASSOCIATION OF GRADUATE SCHOOLS

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9th Annual Meeting, Honolulu, HAWAII
March 5 - 7, 1967

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Office of Education
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WILKENING, M. H.
New Mexico Institute of Mining and Technology

-- FIRST GENERAL SESSION, Monday, March 6, 1967 --

presiding
thomas d. o'brien

WELCOME
by the host institution
University of Hawaii
Dr. Thomas H. Hamilton, President

address"

KNOWLEDGE IS POWER: A SERMON FOR GRADUATE DEANS

Dr. Kevin P. Bunnell
Associate Director
Western Interstate Commission
for Higher Education

I. "Things Fall Apart; The Centre Cannot Hold;"

I once heard the dean of a distinguished eastern graduate school say that he had about as much control over graduate education at his institution as a man on the end of a pier has over the gulls wheeling above his head. Perhaps it is to his credit that this dean always managed to be urbane about his plight. But the fact that he was so graceful and so gentle in the face of his impotence sharpened my sense of despair that the graduate deanship in the foreseeable future would become a significant office within the university. On most campuses today, the graduate dean enjoys less prestige and less power than most major department chairmen.

I have not come here to lull you with gentle and reassuring words. The graduate deanship in America today is in serious trouble. Perhaps there are ways of overcoming the maladies of the position. I want to explore with you the utility of institutional self-study in the graduate school as one means of revitalizing the graduate deanship.

It would be unfair to say that only those in the graduate schools who hold the title of "dean" are in trouble. My views of graduate education are much more pervasively pessimistic than this. The entire enterprise of graduate education needs to be re-examined and restructured. I am in sympathy with Professor Arrowsmith's verdict that the balance between research and teaching in the graduate school has been dangerously distorted by the hard-driving Ostrogoths of research who have already carried us so far into the world of technical scholarship that the graduate schools may never be able to regain their balance again.

Those of you who have heard or read Professor Arrowsmith know that he is very skillful indeed with words. It would be easy to agree with him simply because he says it so well -- if there were not so much other evidence to reinforce his position. I could quote that evidence from the literature of higher education, but instead let me tell you what reinforced my concern for the condtion of graduate education even more than the literature.

In the course of preparing this paper I asked a research assistant, a graduate student who works with us at WICHE, to put down his views concerning the maladies which affect graduate education. This man is basically a thoughtful and constructive person. Unlike many student critics of higher education, for him, protest is not a way of life. And so he caught me quite off guard by the bitterness of his comments about the graduate schools and the people who run them. He said:

> It seems incredible that the state of affairs in the office of the graduate dean has been allowed to continue as long as it has. I must conclude that the main reason for this is that there has been no systematic or comprehensive attempt to identify the validity of the position of the graduate dean within the institutional structure of higher education. Or even assuming this office has an indispensible function, to identify those problems which inhibit this office from reaching its full potential.... Yet, the glaring reality is that no significant change in education can be better than people effecting it. Therefore, the demand should not be that education take a look at itself--but that educators take a look at themselves.

He goes on to say that the educational experience of too many faculty members has been

> .....as meaningless as the one they are destroying their students with now. Those who have never learned a true intellectual and emotional sensitivity toward life probably never will--unless it is still not too late for some of their unspoiled students to teach it to them.

These are cutting words--not from a Mario Savio, but from a forward moving, constructive graduate student. These words strengthen my conviction that the graduate deanship and graduate education are in deep trouble.

This feeling of discontinuity and deep trouble is powerfully expressed in another context by William Butler Yeats in his poem, "The Second Coming".

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the worst
Are full of passionate intensity.

II. "Knowledge is Power"

I would like to talk with you about the possibility that institutional research at the graduate level may provide some useful remedies for the ills of the deanship and the graduate schools.

What is institutional research? Institutional research and all of its associated techniques and mechanisms is simply a tool for generating knowledge -- in the present context, knowledge of the graduate education enterprise. But what irony is this? I have said that research, a chief source of the graduate school's dilemma may be one means of its salvation. I stand on this. Let us go further. Come back to the idea that institutional research is a means of generating knowledge concerning the graduate school enterprise. I ask you to accept the thesis that knowledge is a means towards the power to effect change. I think you will agree that if there is one thing graduate deans need, it is that kind of power. If knowledge can produce power, then let us look more closely at the idea of knowledge in this context.

I accept the premise that there is a real world which man can know only through the imperfect mechanisms of the senses.. Man's search for knowledge is a struggle to glimpse the real world. It is a time consuming struggle, for raw data coming into the brain from the senses must be submitted to a long and arduous process of structuring in order to become meaningful. Until the invention of the computer and related techniques for data gathering and processing, men had to work within the limitation that in spite of their most careful researches, they could only understand imperfectly the reality they were seeking. Time was against them. Today the new tools of research enable us to come much closer to the truth because of our capacity to structure quickly vast quantities of data related to the matter under study.

All of this is by way of saying something rather simple: as graduate deans you now have at your disposal instruments for probing your problems which are much more precise and powerful than were available in the past. If you expect to help reform the ailing enterprise of which you are a part, you must use all the new techniques of institutional research to catch a more sharply-focused view of reality.

I have said that knowledge is power and that the computer is simply a means of amplifying knowledge and hence power -- by enabling the researcher to come closer to truth or reality. But this does not touch the question how the graduate dean should use the power conferred by institutional research. I find no better answer than in the analogy of Plato's myth of the cave.

In the seventh book of the Republic, Plato asks us to imagine a great cave. Outside is the brightly lit real world of truth and beauty. The cave is peopled by a race whose only perception of reality is in an occasional imperfect reflection of the outside world on the inner walls of the cave. Now and then a man is brought to the mouth of the cave to view all of reality. If he is able to stand the brilliant light of the real world, he becomes a philosopher, says Plato. And then Plato hyphenates the word "philosopher" to add the word "king". For in his myth the men who come to the mouth of the cave are to be not only people of the greatest knowledge, but also men of action, willing to return to the murky depths of the cave and teach the less fortunate about the truth and the reality they have perceived at the mouth of the cave.

I have enjoyed thinking about the myth of the cave as a model for the role of the graduate dean because it offers such a complete analogy. Why not think of the graduate dean as a Platonic philosopher who is able to use institutional research and modern data technology to gain knowledge of his professional world far beyond the understanding of ordinary men -- to view the real world outside his cave. And why not think of him also as a Platonic king who willingly accepts the political responsibilities that go with superior knowledge. Like Plato's philosopher-king, the graduate dean can use the knowledge to be gained through institutional self-study to engage himself with other academicians in the reform of graduate education. He must return to the cave -- to the everyday world -- and arduously apply his knowledge to the tasks at hand.

This may all sound rather "far out" to you. Nevertheless I find Plato's philosopher-king to be a dignified and realistic model for the graduate dean -- a man deeply interested in ideas, constantly searching for new truths concerning the enterprise he heads, and at the same time a hard-driving practical politician who enjoys engaging his fellow teachers and researchers in the task of reforming, strengthening, and restructuring graduate education.

III. "Strategic Imperatives"

This brings us to the essentially political question of strategy. How shall you as graduate deans exploit the varied resources of institutional self-study?

First, it is important that the function of institutional research be well-established at your university. Ideally, there will be a unit which is committed to producing operational data on a routine basis to inform the decisions of top administration. In addition, there should be another unit, preferably separate from the first, whose function is to serve the institutional self-study needs of faculty and administrators; to advise, on request, concerning the techniques of IR.

In addition, the really resourceful graduate dean, stooping to low cunning if necessary, will attach unto himself a small cadre of the new data technicians -- people who combine with their more conventional talents a knowledge of the systems language, who know how to program a computer, or who can design a questionnaire to acquire the necessary data to be fed directly into the computer. (At all costs, the dean will avoid acting as data technician himself.) With these kinds of resources tucked away for ready use, the graduate dean can move gracefully, effectively, and if necessary, unobtrusively, into the world of institutional research.

Of course, we all know that before there is going to be much attention to self-study in the graduate schools, there must be some real changes in the attitudes and behavior of graduate deans, faculty members, and other administrators. They must manifest a new willingness to permit the mechanisms of IR to be established, and they must agree to address themselves seriously to the problems of determining what shall be studied and what decisions shall be made on the basis of the studies.

These changes will not happen easily and probably not quickly. Indeed, we may be well into the next generation of deans before the attitudinal and behavioral requirements of IR are fully understood. We all know that the stakes are high. The problem is no less than how we can change graduate education enough to produce the people who can live and lead in the spaceship world of the twenty-first century.

The chief strategists in this enterprise, this reform of graduate education, will be those who find enough time and have the ability to conceptualize about the interdependence between man and his surroundings. The really creative conceptualizers of the future will be those who are secure enough within themselves to turn over to the computers the task of handling infinite amounts of data. Thus far, there has been a marked unwillingness on the part of many academic people to accept the computer fully. They apparently fear that the computer, by assuming the tasks of handling data, becomes a threat to their own research identity. Because they do not trust the computer, they continue to specialize knowledge into infinitesimally small packages, trying vainly to conquer the impossible task of dealing with data themselves.

Somehow you must regain for yourselves and for some critical mass of your colleagues the broad art of conceptualization. The computer is one means toward this end. You must come to grips with it.

Important though it is, having command of the tools of IR is not enough -- for the heart of institutional research is ideas. Perhaps the most fatal error a graduate dean can make is thinking that he must be the only source of ideas concerning the direction of institutional research in the graduate school. At WICHE, where our stock in trade is ideas, we have learned to seek out, respect, and use the ideas of the younger men on our staff. Somehow you must manage to surround yourselves with the young solid thinkers whose spirits have not yet been broken by a conventional graduate school experience -- who will tell you what they think and not what they think you want to hear, and who will join with you, uninhibited, in the give and take which will produce exciting ideas about the kinds of institutional studies which will get at the reality of your graduate school enterprise.

And once institutional research has been admitted to your graduate school, a successful strategy will demand that you understand the full significance of the answers it produces and then act accordingly. IR musters all of the complexity and sophistication it can to generate answers. But when you and your staff face the task of deciding what the answers signify, a different kind of simple, intuitive thinking must come into play. You remember that most of Einstein's work is epitomized in a simple equation -- $E = MC^2$ -- which he grasped intuitively before he was able to prove it. You will want to learn to use IR data to reach for the intuitive conclusion which transposes the seemingly complex into the concise, the understandable, the workable. Perhaps this is the "ceremony of innocence" that Yeats speaks of. At any rate, it is an essential part of the IR process, often neglected, difficult to accomplish.

All of this -- people, technique, machines, and ideas -- all cost money. I expect the work of institutional research were better not done at all than tackled with little or no money. The untended ills of graduate education are too serious and too long neglected to be treated with poor quackery and half measures. Graduate education needs the full institutional research treatment. I hope the graduate deans will see that it gets it. If not, then it is quite possible that the illness of graduate education will be confirmed as a permanent mutation, an historic flaw in our educational system.

IV. "Knowledge of What?"

If I may lean on Plato's myth for one more phrase, I would suggest that very few potential philosopher-king - deans have come to the mouth of the cave to catch a glimpse of reality. I look at none of you as individuals. It is simply characteristic of the graduate schools that they have not turned the methods of research upon themselves. There is an overwhelming backlog of studies concerning graduate education which, if undertaken, could give us new views of the reality of the enterprise which simply cannot conceive in the present state of our knowledge. Here is where you as graduate deans come in. You must have the knowledge of philosophers before you can hope to become kings.

And what shall you study? What shall you learn through the tools of institutional research? Some rather detailed answers to these questions will come forth during this meeting. Let me suggest a few kinds of studies which are waiting to be done.

You need to know more about the characteristics of your graduate faculties. You have plenty of information about their degrees and their research achievements, but what about their value systems? How do they really feel about teaching, research? Where do their professional loyalties lie? Is it true, as Professor Arrowsmith asserts, that the departments have been "captured by the research professoriat", and that most researchers find teaching distasteful and unworthy of their abilities?

You need to know far more about the students who come to graduate school. How does the experience of graduate education change their value systems? Is this good or bad? Is there a relationship between "success" in graduate school and success in later life? Is the student a failure who leaves graduate school, without the degree he started to earn? Are his values different from those of the student who completes his degree? Could the graduate school have offered him an alternative to departure from the academic environment?

Do you know enough about your own institution? Do you have the nerve to produce data which will give you a true assessment of your institution as compared to others? Are you ready to stand still for a study which would go far deeper than Alan Cartter's American Council on Education study of the graduate schools? Are you willing to have your school lie "like a patient etherized upon a table", while the strengths and weaknesses of your departments and your administration are analyzed and crtiticized? Submitting an institution or a division to such reality-probing is not easy and it is certainly not customary. But such willingness to live the examined life is dignified; it is statesmanlike; and it may be kingly.

And then you need to know more about teaching in the graduate school. When I ask college students to describe the most exciting learning experience they have had since coming to the campus, most of them tell of an event which didn't even involve a teacher. You need to know whether teaching is on the way out as a major graduate school function. If not, you should ask whether graduate teachers really "teach" and under what conditions they teach best. And you need to learn which teaching methods students respond to best and how you can reform methods to achieve the results you want.

Finally, as philosopher-kings, you must know yourselves. The graduate deanship should be subject to the most penetrating kind of self-study. What are your values? What are the strengths and weaknesses of the position of graduate dean? How is the deanship perceived by other members of the institutional enterprise? As the first few paragraphs of this paper exemplify, there is a good deal of opinion about graduate deans. Now it's time to come closer to the reality.

* * * *

These are the kinds of hard questions that institutional research will help you to ask and to answer. The task is large and difficult. The tools for the struggle are at hand. You must use all you can learn about faculties, about students, about your institutions, about the processes of teaching, and about yourselves. And if what you learn convinces you that you must begin this enterprise anew, then, like Agamemnon, "launch the thousand ships and burn the topless towers of Illium" -- the Illium of graduate education. And then, as modern-day philosopher-kings, build a new Troy that teachers and students and researchers can all inhabit with equal dignity and integrity and self-fulfillment.

SECOND GENERAL SESSION, Monday, March 6, 1967

presiding:
philip m. rice

theme:
RECENT INSTITUTIONAL RESEARCH ON GRADUATE EDUCATION

address: "Institutional Research and the Graduate Dean"

Clifford Stewart
Director of Institutional Research
Claremont University Center

Herbert Kells
Associate Dean
State University of New York
at Binghamton

This paper will deal briefly with the evolution of institutional research and discuss the relevance such activities have for the graduate dean.

Institutional research has developed in response to the needs of various members of the college or university community who have responsibility for planning, evaluating and improving the elements of a total educational program. Individual offices have been established for a variety of specific reasons, all of which may be subsumed under the general need to have information for decision making. The director of institutional research is usually in a staff position and is often attached to the president's office. The assumption is that the office of institutional research will provide data that will enable members of the academic community to make more intelligent decisions; decisions based on available facts; decisions reached by adequate consideration of alternatives.

Concurrent with an increase in numbers of offices of institutional research at colleges and universities has been the trend in all types of institutions toward what is called "scientific management", i.e., the increased use of quantitative data in policy formulation, and the use of computers in administration. Scientific management and institutional research have developed together and may, in some respects, be viewed as the same thing. But only in some respects, because most would agree that the principles used in managing a business have but limited application to colleges and universities. In any event, the need for reliable information for decision making has led to the increased emphasis on institutional research. The major emphasis of the program of a particular office of institutional research will depend upon the needs of the institution and the particular interests of the director. Some offices are chiefly oriented toward the hard, cold "operations" aspect of the university, and emphasize such things as space utilization and cost. Others concentrate on studies of the academic program and student-related variables. Some do all of these things. There may be a faculty advisory committee to work with the director to help identify faculty interests and concerns. Advisory committees may have student members for similar reasons. Chart I portrays a generalized organizational pattern for a fully developed office of institutional research at a medium size university.

What are some of the ways in which a graduate dean can utilize institutional research? Well, what are the concerns of the graduate dean? Berelson[1] and others have spoken of such issues as the quality of students, the need for a foreign-language requirement, the role of the masters degree and other problems familiar to all of you. Many of these are concerns of graduate deans today just as they were 60 years ago. There may be no generally applicable solutions to these problems since each graduate dean may have his own opinion on each of these issues including, of course, the opinion that regarding some -- no problem exists. But in dealing with the issues that are of concern, it is the thesis of this paper that institutional research can be of significant assistance in that it can provide a viable approach to solutions to these problems. It can do this in two ways; first, by establishing procedures which will yield a continuous flow of information about all aspects of the graduate programs. This includes both general information relating to the people and processes involved in a total program (the students, the courses, the faculty, etc.), and more specific information on selected topics. For instance, a graduate dean may want to be continuously aware of the length of time it takes in each field for a student to get a degree, and the relationship between the time and the amount of financial aid available in each field. Other examples of "ready reference" items are the number of full-time and part-time students in each program, the ratio of applications to admissions and to enrollees, and why some of those who were admitted chose to go elsewhere. All of you can add dozens of additional examples. Such items are aspects of the graduate dean's program for which he should have immediate access to information. The point here is that an office of institutional research can help establish with the dean a list of priority items to be monitored continuously and then perform this service. Chart II shows a sampling of such items.

Second, the dean should be able to call on an office which can in a reasonable period of time, design and conduct more extensive studies in response to questions he may pose -- questions such as, "What are the factors that draw students to a particular graduate school or program?" and "What are the reactions of the graduate students to the requirements in a certain degree program?" Here again, each of you could list many more examples of concerns you have about the situation on your campus.

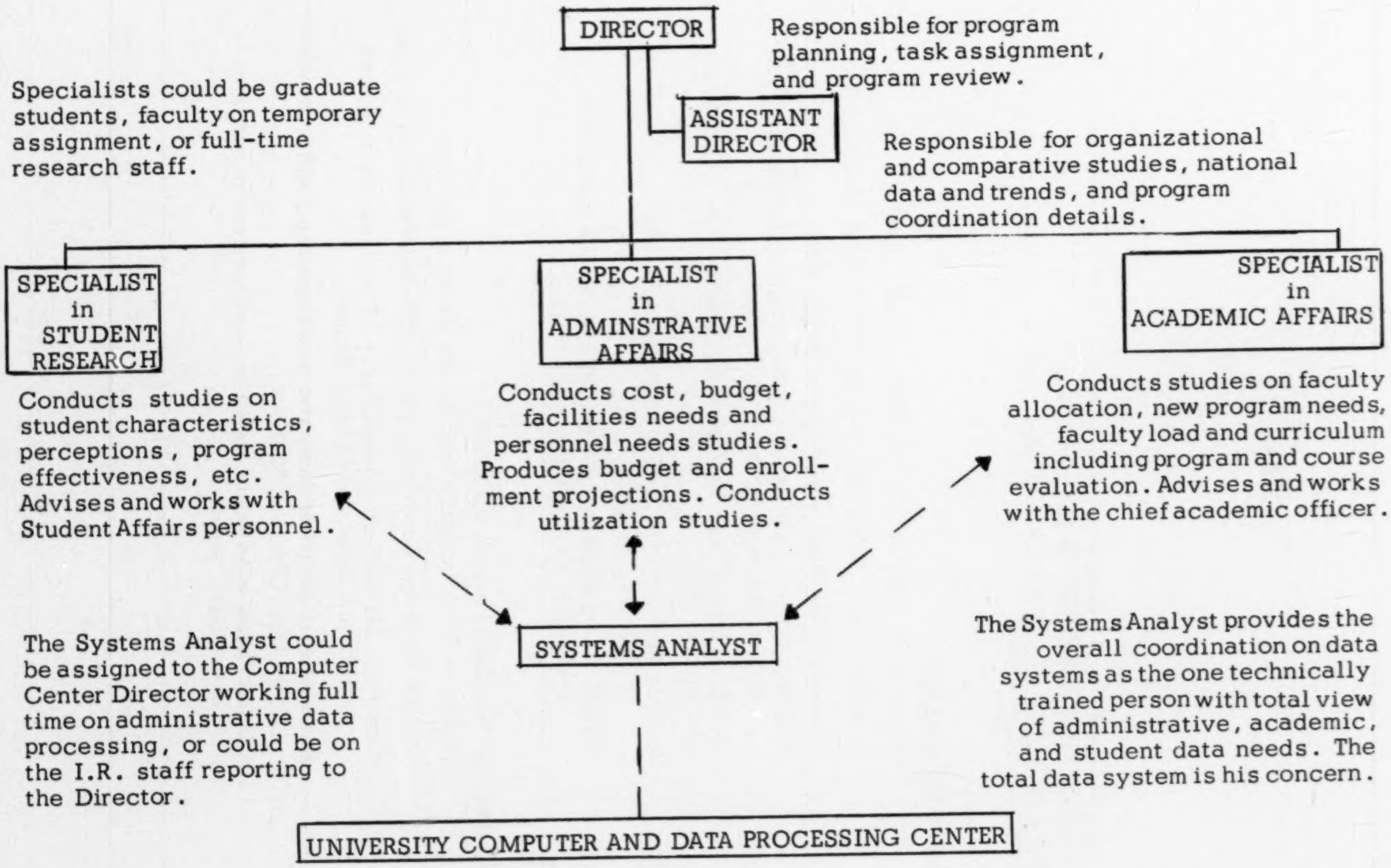
These are the kinds of questions the deans should be able to present to an office of institutional research and have translated into studies, the results of which should serve to facilitate his decision making or that of the graduate council.

---

[1] Berelson, Bernard R., Graduate Education in the Arts and Sciences Challenge and Change in American Education, ed. Harris, S. et al-- McCutchan Publishing Corp., Berkeley, 1965.

A PROPOSED ORGANIZATIONAL SCHEME

FOR A UNIVERSITY INSTITUTIONAL RESEARCH OFFICE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ASSISTANT DIRECTOR
SPECIALIST in STUDENT RESEARCH
SPECIALIST in ADMINSTRATIVE AFFAIRS
SPECIALIST in ACADEMIC AFFAIRS
SYSTEMS ANALYST
UNIVERSITY COMPUTER AND DATA PROCESSING CENTER

Responsible for program planning, task assignment, and program review.

Responsible for organizational and comparative studies, national data and trends, and program coordination details.

Specialists could be graduate students, faculty on temporary assignment, or full-time research staff.

Conducts studies on student characteristics, perceptions, program effectiveness, etc. Advises and works with Student Affairs personnel.

Conducts cost, budget, facilities needs and personnel needs studies. Produces budget and enrollment projections. Conducts utilization studies.

Conducts studies on faculty allocation, new program needs, faculty load and curriculum including program and course evaluation. Advises and works with the chief academic officer.

The Systems Analyst could be assigned to the Computer Center Director working full time on administrative data processing, or could be on the I.R. staff reporting to the Director.

The Systems Analyst provides the overall coordination on data systems as the one technically trained person with total view of administrative, academic, and student data needs. The total data system is his concern.

CHART I

CHART II

Sample List of Items
for which an Institutional Research Office
would provide continuous Data
to the Graduate Dean

Each Semester

Enrollment information by field, level, status, etc.

Distribution of financial aid by field, type of aid, etc.

Production of degrees by type, field, etc.

Relationship of number of applications to those admitted and to those enrolled -- by field.

Certain faculty data by field (workload data, sabbatical plans, etc.)

Amount and type of T.A. involvement in undergraduate instruction by field.

(Other items depending on problems at the particular campus -- as the dean sees them.)

Annual or Occasional Studies

Reasons for admitted students enrolling elsewhere.

Current average length of time to the degrees in each field.

Complete student progress chart -- detailing the progress each has made toward the degree.

Relationship between entering qualifications (GRE, etc.) and performance, by field.

Comparisons with other specific institutions or national or regional norms.

There may be some value in the dean being his own director of institutional research -- even to collecting raw data. He does receive a constant flow of inquiries from the federal government, trustees, the president, students and visiting firemen. But since the dean is also responsible for the overall guidance of the graduate program, the collection of all the data which would enable him both to respond to such inquiries and to consider other prime questions would consume too much of his time. One would hope that most deans would welcome the suggestion that someone else gather the kind of information we have been talking about.

If there is no established institutional research office on his campus, the dean may decide to select certain specific problems or issues that interest him most or about which he is required to have information. His secretary or graduate students might gather, and perhaps begin the analysis of the data for him. Such an arrangement can and does work quite satisfactorily on some campuses. Ideally though, an office of institutional research should perform this function.

There are a number of areas, which may or may not be relevant to the concerns of the graduate dean, in which a large number of studies have already been conducted with samples representing a wide enough variety of populations so that available data can be considered adequate. For example, the issues of large classes versus small classes and live versus televised presentation of material have been extensively researched. In the many studies conducted in these areas, the critical terms such as "learning" and "largeness" have been variously defined. These studies can be sorted out until one finds those that define the terms to his satisfaction or appropriately for his situation. To use an example closer to home, a good deal of data already collected seems to indicate that if one wants to decrease the average time required for students to achieve a degree in a particular field (at least up to a point), one should increase the level of financial aid available in that field. In cases like this, the function of the office of institutional research is to be aware of or to become aware of the previous work and to relate it to the current questions.

There are questions, however, in which special population characteristics such as part-time versus full-time, or achievement level play a primary role, and the need for studies of your own students or institutions has not been eliminated. For example, though there appears to be a general relationship between GRE scores and achievement in graduate school, you will want to determine how well the GRE predicts performance in each of the fields on your campus. To use the "time to the doctorate" example again -- the graduate dean will want to check periodically to see what the average time to the degree is in each field on his campus.

There are still other areas in which you will need repetitive or continuing studies. You may know the relationship of GRE scores to grades at your own institution in each field at one point in time, but you can't assume that this information has been gathered for all time. Studies of this type should be routinized so that the data are available continuously at predetermined intervals. This is precisely the kind of situation where an office of institutional research can be very helpful to you.

Another often neglected and yet one of the most important functions of institutional research is to assist in program evaluation. A detailed example of this will be provided in the paper by Mr. Kells. When a program is established, by definition, it is to accomplish certain goals. Once the program is going, however, there is a tendency for it to be forgotten. Rarely does anyone ever check to see whether the goals are being achieved. In fact, some programs and some so-called experiments are so incompletely designed that it is virtually impossible to check the attainment of the goals. Upon examination, the goals were never clearly specified. As a very simple example, graduate students sometimes work on their dissertations up to a certain point and then begin to look for someone who is "good at statistics." They will find such a person and say, "Here's what I have done, now what statistical technique shall I use?" This is the first thought they have given to evaluating their results and, in fact, they are not giving it thought, they are asking someone else to. This characteristic too often carries over into later life. Institutional research has a two-fold function here. First, to see that programs are designed so that they can be evaluated, and second, to participate in or to conduct the evaluations.

This example points to a more general consideration, namely, the role of institutional research in planning. Long-range planning may be forced on the graduate dean when statewide planning has been initiated or when applications must be made for government loans or grants. Here again, an organized institutional research effort can be invaluable. For in order to plan, one needs a foundation -- good data. Planning for 5 to 10 years in the future requires that reliable information be available for the past 5 or 10 years. It is sobering to consider that some colleges and universities that do not have a 10 year plan today, will have one tomorrow -- literally tomorrow! The president, the graduate dean, and/or others will do it tonight and it will be sent along as part of an application for a grant or to satisfy a statewide coordinating agency tomorrow.

All of this says, then, that the office of institutional research should be able to function in several ways. First, it can perform a service function wherein the office will supply compilations of information that should be routinely available, or will supply on demand a specific study needed by the dean, president, or other person or group within the university.

A second way the institutional research office can function is in joint research programs. A joint study of attrition of doctoral students by the assistant dean of the graduate school and the institutional research office would be a good example of this. In addition, faculty members conducting research should be able to call on the office of institutional research for help in research design as well as related statistical skills, and for "off the shelf" knowledge that the persons in this office possess.

A third type of function is initiating studies directly. The institutional research staff should be in a good position to see certain needs for studies and should be able to, and in fact, have a responsibility to initiate them as these needs are perceived.

However, a danger of possible imbalance in efforts exists. Too many "one shot" institutional surveys or uncoordinated research efforts may be undertaken on a service basis to the detriment of more orderly institutional analysis. The energies of any one person or of any office can be easily consumed by putting out "brush fires". This, in turn, must be balanced against the fact that at certain times there are pressing and urgent needs for information. In these cases, the office should be responsive to such needs while striving for a continuing integrated and organized research effort. The more this latter goal is achieved, the less will be the needs for emergency studies and really, this is the job of institutional research; to develop a continuing, integrated and organized research effort.

In summary, by utilizing the efforts of an office of institutional research, the graduate dean can have conducted under his direction a continuing internal audit or self-study of the graduate program. He can determine the ingredients of this internal audit, and as in using any useful long-range plan, review it and revise it periodically on the basis of the results produced. All of this, of course, implies an obligation on the part of the administration of the university to provide significant levels of support for such an office so that those services can be available to those who wish to use them. It is well to keep in mind that the desire for information by a graduate dean should be accompanied by a willingness to share information with other offices in the institution and with the graduate deans at other institutions. Here again, an office of institutional research can serve by answering the great bulk of requests for information from the outside.

Finally, it is most important to stress that the real challenge should lie with the institutional research office if the deans are seizing the opportunities such a service can provide. Institutional research staff members must be versatile enough to adapt to the complexities of graduate education. Such an office should never refuse to conduct a project or insist that it be altered substantially because "the computer can only classify students five ways and such a study would require classifying them six ways." The graduate dean should not fail to start a project because of any apparent limitations of this type. Therefore, both the graduate dean and institutional research director face challenges; the dean to respond to an opportunity to avail himself of the services of institutional research, and the institutional research person to respond in a way that will not limit the usefulness of the information needed by the dean.

address: "An Evaluation of a Significant Experiment In Intercollegiate, Interdisciplinary Graduate Education"

H. R. Kells and C. T. Stewart

There are two reasons why we embarked on a study of the program I shall describe and why we agreed to present some information and thoughts on it here today. The first is, as it should be, related to the general theme of this meeting -- institutional research in graduate education. More specifically though, we attempted to conduct the type of institutional study for which there is the most crying need, that of program evaluation. The primary reason for institutional research is to provide information for decision making by faculty, students, and administrative staff. However, the most serious and often justified criticism of the evolving system of institutional research today is that the emphasis tends to be on uncoordinated data collection and dissemination as an end in itself. Ideally the process should consist of developing a coordinated, efficient system of data collection and manipulation as a tool, and then a moving beyond this stage to focus this machinery upon the problems we face and the needs we have. Instead most institutional research workers, and even some graduate deans, become preoccupied with the amassing of data, chart making, and broadcasting a barrage of facts and figures to all within reach of the voice or the intracampus mail. Not only is this wasteful of the time of major participants in the academic enterprise, but it no doubt contributes to the alienation between faculty and administration which exists on many campuses. It is regrettable when the academic vice president sometimes becomes known as "Mr. student credit hours generated" and the graduate dean often as "Mr. FTE graduate students". So, in this study we chose to collect and focus the available information with respect to one specific program in order to contribute to its evaluation.

The second reason we undertook the study was that this program, the Intercollegiate Program of Graduate Studies (IPGS) contained three of the elements consistently of great concern to graduate education (intercollegiate cooperation, interdisciplinary study, and a teaching internship) in a thirteen year experience which produced a body of information which should be made available to all concerned.

"The Problem"

In October, 1966 we were asked by the Presidents of the seven institutions participating in IPGS (Claremont Graduate School, Occidental College, Whittier College, University of Redlands, Pomona College, Scripps College and Claremont Men's College) to conduct an historic analysis and program evaluation of this cooperative graduate program which had started in 1954 under generous support by the Fund for the Advancement of Education of the Ford Foundation. The program, leading to the Ph.D., is designed for particularly able students in the humanities and social sciences who wish to add a broader learning and perspective to the knowledge and techniques required for the Ph.D. in their respective areas of concentration. Hoping to produce teacher-scholars who would be particularly well suited for faculty roles in smaller liberal arts colleges or in integrated or general education programs, the program as originally proposed and initiated entailed participation by carefully selected students in well planned interdisciplinary seminars which provided breadth without sacrificing depth, and by participation in special colloquia in addition to the usual disciplinary courses or seminars. The IPGS students were also to complete preliminary examinations which tested knowledge in five specially selected areas, and to produce a dissertation interpretative in nature relevant to the candidates preparation to teach undergraduates. It was also hoped that IPGS would provide a mode of collaboration between the participating colleges which would add strength through unity of action and which would yield synergistically many valuable "fringe benefits" for the total educational program at each institution.

The IPGS program had operated for about 13 years when we were asked to analyze the situation. It had been under the direction of a part-time Executive Director, a faculty educational council, and an administrative council composed of the Presidents of the participating institutions.

In the Fall of 1966, the IPGS seminars were still being conducted, and a number of doctoral and masters candidates were approaching completion of their work to add to the total of 50 doctoral graduates having participated in IPGS. However, the Program as originally conceived and funded was all but completed. The once popular seminars were no longer enthusiastically acclaimed by all students and faculty, the Educational Council had essentially "closed its books" the previous Spring, there was no active central administrative effort, student morale was at a low ebb, and institutional re-evaluation of the Program priority rating was underway at all participating institutions.

The objects of our study were to compile a useful history of the program and to find out why the program was faltering.

"Methods Employed"

The lack of any complete central IPGS records required that considerable effort to spend accumulating facts about the Program. To gather this information we searched old correspondence files, employed available partial class lists on four campuses, sifted memoranda and available copies of proposals, proposed budgets and records of expenditures. Data on Ph.D. graduates were obtained by working backward from lists of degree grantees to isolate IPGS participants, thence to examine transcripts and folders on each. Interviews on each participating campus were employed. Thirty-three faculty, students and administrative staff were interviewed.

Evaluative efforts regarding the program were conducted by complementing the interview process with questionnaire techniques. Views were sought from Ph.D. graduates, past and present faculty participants, and colleagues and employing Deans of past graduates.

"Results of the Study"

The Program was supported externally by the Ford Foundation Fund for the Advancement of Education, the Haynes Foundation, and NDEA fellowships; internally by the participating colleges. This is summarized in Chart I.

A Summary of Interdisciplinary Seminar Offerings for the period of 1953-1966 was compiled and a segment from this is included in Chart II in order to portray the structure of this important element of the program.

To date over 300 students have participated in IPGS interdisciplinary seminars. Fifty Ph.D. graduates from the three Ph.D. granting institutions participated to some extent in the IPGS seminars. Thirty-one of the 50 participated in the usual four semesters of seminar, and perhaps 35 of the 50 participated in aspects of the program in addition to the seminars (colloquia, intern teaching, broad dissertation topic.)

CHART I

Approximate Average Breakdown
of I.P.G.S. Expenditures
from External Funds 1953-1965

	1953-1955	1955-1960	1960-1965
Instructional Salaries...	80.%	45.% (2)	(Borne by col.)
Fellowships...........	--	42.	93.%
Non-instructional salaries (1).........	2.0	2.5	0.3
Travel................	2.5	2.5	2.0
Colloquia Honoraria....	3.0	1.5 (2)	0.5 (2)
Teaching Material (Books, etc.).......	8.0	3.0 (2)	0.2 (2)
Office Supplies etc.....	1.0	0.5	0.2
Publicity and Mailing...	1.0	1.0	0.3
Exec. Dir. Office......	--	1.5 (3)	2.5 (3)
Business Office........	--	0.5	1.0
Summer Workshop......	2.5	--	--
	100.%	100.%	100.%
	(All external support $120,000; approx. $60,000 per yr.)	(External support was $364,000 from Ford F. Adv. Ed., and $16,200 from Haynes Fnd.; about $75,000 per yr. (2)).	(External support was $184,000 from Ford F. Adv. Ed.; and $40,500 from Haynes Fnd.; about $45,000 per yr.)
Indirect costs (4) in addition to Bus. Office Expense..............	Borne by College	Borne by College	Borne by College

---

(1.) Payment to Education Council Chairman and Secretary and for clerical expense.
(2.) Declining amount over the period.
(3.) This resulted in no released time direction for the program.
(4.) Probably amounted to about 20% of direct costs per year.

CHART II

Interdisciplinary Seminar Offerings
Fall Semester 1962

Seminar Title	Faculty Participating (School, Field)	ENROLLMENT				
		Total	CGS	Oxy	Red	Whi
IPGS 416a The Twentieth Century Mind	Fussell (CGS, Eng) Busacca (Oxy, CL) Gaustad (Red, Phi)	21	16	3	2	0
IPGS 417a Studies in Cultural History: 19th Century Culture	Bromberger (Red, Eng) O'Brien (Whi, Soc) Schneider (CGS, Phi) White (Sc, His)	11	3	4	4	0
IPGS 418a The Idea of Society: Urban Civilization	Scaff (Po, Soc) Blair (CGS, Gov) Erickson (Whi, Psy) Niven (CGS, His)	5	5	0	0	0

Chart III summarizes the Ph.D. production related to the Program.

As an example of the type of student who participated in IPGS and received the Ph.D., another excerpt from our IPGS report is provided in Chart IV. This chart presents information on four of the 50 Ph.D. graduates who participated in IPGS to some extent.

Questionnaire techniques which yielded an enthusiastic response were employed in order to estimate the effectiveness of the Program. Faculty participants, graduates, teaching colleagues, and employing Deans of the graduates were surveyed.

CHART III

Production of Ph.D. Graduates
who participated in I.P.G.S.

Year	Total	Claremont Grad. School No.	Claremont Grad. School Field	Occidental No.	Occidental Field	Redlands No.	Redlands Field
1957	1	-	--		--	1	Hist. of Ideas
1958	1	-	--	1	Comp. Lit	-	--
1959	1	-	--	-	--	1	Comp. Lit
1960	5	4	English	1	Comp. Lit	-	--
1961	4	1	Polit. Econ.	1	English	-	--
		1	English	1	Comp. Lit	-	--
1962	5	2	Gov't.	1	Comp. Lit	-	--
		1	English	-	--	-	--
		1	History	-	--	-	--
1963	6	1	Gov't.	3	Comp. Lit	1	Asian Studies
		1	English	-	--	-	--
1964	10	1	Asian Studies	1	Comp. Lit	-	--
		1	Economics	-	--	-	--
		2	Education	-	--	-	--
		2	English	-	--	-	--
		3	Gov't.	-	--	-	--
1965	6	1	English	1	Comp. Lit	1	Comp. Lit
		3	Gov't.	-	--	-	--
1966	11	1	English	3	Comp. Lit	-	--
		2	Gov't.	-	--	-	--
		1	History	-	--	-	--
		1	Int. Rel.	-	--	-	--
		3	Philosophy		--	-	--
Totals	50	33		13		4	

Number of Semesters of I.P.G.S. Seminars Attended by the Graduates.

Claremont	Occidental	Redlands
1 attended 5 Semesters	--	1 attended 5 Semesters
15 attended 4 Semesters	11 attended 4 Semesters	3 attended 4 Semesters
1 attended 3 Semesters	--	
15 attended 2 Semesters	2 attended 2 Semesters	
1 attended 1 Semester		

INFORMATION ON FOUR OF THE PH.D. GRADUATES
who Participated in I.P.G.S.

Name	Field (Comm.Chmn.)	Previous Degrees Entering Qualif.	Academic Perform.	IPGS (sem s)	Seminar Participation Cse.	Dates	Grades	Where Taught Since
CLAREMONT GRADUATE SCHOOL								
Barnes, Richard	English (Fogle)	B.A. Pomona '54 Magna cum laude cum gpa 3.72	All A's	(2)	401 a,b	55-6	A, A	Pomona
Ph.D. 1960	Dissert:	"Effect of Recent Geographic Discoveries Upon English Literature 1600-1625"						
Davis, Robert	English (Fogle)	B.A. Indiana U '50 M.A. CGS '54 Phi Beta Kappa cum gpa 3.43	20 A's 2 B's	(2)	401 a,b	55-6	A, A	Indiana U Western Michigan
Ph.D. 1960	Dissert:	"Times Journey to Seek his Daughter Truth by Peter Pett: A Critical Edition"						
Smith, David	English (Lang)	B.A. Pomona '44	7 S's 15 A's 2 B's	(2)	401 a,b		A, A	Cal Tech.
Ph.D. 1960	Dissert:	"Origins of the International Novel: Studies in Transatlantic Fiction 1812--65"						
Wilkinson, Robert	English (Chew)	B.A. Occidental '54 M.A. CGS '57	8 A's 7 B's	(4)	407 a,b	56-7	A, A	
					410 a,b	57-8	B, B	U of Hawaii
Ph.D. 1960	Dissert:	"Ideals and Idealism in Sir Walter Scott's Waverly Novels"						

CHART IV

The very interesting reaction of faculty participants is summarized in Chart V.

CHART V

Summary of Responses
to Questionnaire
to Faculty Participants

Number Responding = 24

Participation of those Surveyed = 52%

Question		Yes	No	Other
1.	Were the goals of the IPGS important?	22	0	--
	Were they achieved by the program?	7	13	4
2.	Was the program well administered?	9	7	3 "fair"
3.	Were the participating institutions fully committed to the program?	4	10	3 "some"
4.	Were the interdisciplinary seminars effective?	9	8	6 "partially" "some were, some were not"
5.	Was the general quality of the students high enough?	15	7	--
6.	Were your faculty colleagues committed to and qualified to participate in the seminars?	13	5	4
7.	Should IPGS be continued?	16	5	--

It can be seen that while the faculty questioned whether the goals had been achieved and were not enthusiastic about either the administrative direction or institutional commitments, the overwhelming majority felt that the goals were important and that the program should be continued.

Of the 24 doctoral graduates responding to the questionnaire the vast majority were enthusiastic about their experiences. Some of the reactions are summarized in Chart VI.

CHART VI

Participant
(Ph.D. GRAD.)
Questionnaire

Number of replies = 24

This represents about 75% of those actually contacted.

question: Did the Interdisciplinary Seminars and/or Special Colloquia fulfill for you the stated purposes of the I.P.G.S.?

Yes*..... 20 No*.....3

question: Was the depth sacrificed for breadth in the Seminars? Or in the Colloquia?

Yes...... 9 No.....13

question: Why did you decide to participate in the I.P.G.S. Program? Were you attracted by the goals of the program, by the availability of fellowship funds, or by other features of the program?

Goals...8 Both...13 Fellowships...2

question: Would you recommend the I.P.G.S. program to others? In the form in which you experienced it?

Yes......19 No......1

question: Do you feel that your effectiveness as a college teacher has been enhanced by the I.P.G.S. experience? If so, how?

There were no negative responses to this item. Three graduates said that it was difficult to know or hard to estimate, but all the others said that the I.P.G.S. experience benefitted them.

*These answers were extracted from comments. Simple yes-no answers were not the only alternatives.

Many thoughtful letters and program suggestions were included with the responses.

Perhaps the most crucial element in the evaluation scheme was the response of the colleagues and employers of the graduates of the program. These are summarized in Chart VII.

CHART VII

Questionnaire
to Colleagues

Two copies of this questionnaire were sent to the Dean of the College employing the I.P.G.S. graduate. The Dean was asked to complete one questionnaire and have a colleague of the I.P.G.S. graduate, who had observed his work, complete the other questionnaire.

Number of replies = 43 (concerning 27 I.P.G.S. doctoral graduates)

This represents comments on 54% of the doctoral graduates.

question 1: How long have you known (I.P.G.S. graduate's name)?

Less than 1 year	1 - 3 years	More than 3 years
9	16	18

question 2: The goals of this program were to provide breadth without sacrificing depth (in a subject field) in the preparation of college teachers. Comparing him to others of the same age and/or length of experience in the same field, is there evidence that this goal has been realized in his teaching? In his research? In other ways?

	Poor	Fair	Avg.	Above Avg. or Good	Outstanding or Excellent
Quality of teaching -	-	1	3	19	17
Quality of research -	-	2	-	11	8

A major problem with effectiveness ratings is the tendency of the rater to consider everyone he rates as being of above average ability. An attempt was made to correct for this tendency by specifically stating the comparison to be made. The tabulations were then made from respondent's statements. The comments usually showed a quite high regard for the abilities of the person being rated, and the longer the acquaintance, the more positive the remarks. The correlation may represent more accurate evaluations of true excellence as more experience and information become available, and it probably also represents some "halo effect".

The general feeling of the Deans and others was that they were pleased that such training (I.P.G.S.) had been and was still available. They were cautious, however, in attributing the excellence of the I.P.G.S. graduates to the Program. Is the Program responsible for creating persons of outstanding ability, or simply for attracting them to the Program? A careful comparison of the entering qualifications of those graduates rated by the Deans and colleagues failed to yield significant pattern of possible effect (exceptional teacher with great breadth, etc.) caused by the I.P.G.S. experience per se.

Although some "good" students were subsequently rated as exceptional teachers, just as many or more exceptional students were rated good, average, or exceptional teachers. Some of the raters seem to feel that perhaps the Program attracted and enhanced the abililities of students interested in some degree of interdisciplinary study. This, however, in itself would seem to be a successful aspect of the Program.

At the conclusion of the schedule of interviews, examination of available records, and the compilation of questionnaire responses it appeared that in IPGS we had uncovered a classical example (and a very saddening one) of "the operation was successful but the patient died."

Three questions remained. What were the reasons for the decline of the program? What was accomplished by the program? What have we learned from this experience?

"Reasons for Decline"

The interviews conducted, the files examined, and the written opinions received seem to point to two major reasons for the decline of the Program. They are:

1. Historical Development of the Participating Institutions Yielded a Change in Institutional Commitments. Some have argued that since an early endowment proposal which would have assured self-reliance and permanence for the Program failed, the barriers to success were raised to unsurmountable levels. It is proposed here that the Program could have faired much better if the relative commitment of the institutions had not declined during the past 12 years. All were struggling with new graduate programs in the early 50's. Now Claremont has a strong discipline-oriented program in many fields, Occidental has chosen another pathway for development, and Redlands has plans for a satellite campus. If all still held cooperative efforts and interdisciplinary doctoral work as high priority items, the Program could still flourish. In short, when the outside funding ceased decline began since other demands preempted available resources.

2. Lack of Strong, Continuous, Central Administrative Leadership and Coordination. All evidence points to the fact that for a number of reasons there was no continuous, effective administrative effort for the Program. Part of this was intentional. At the outset,

none of the institutions wanted one institution to control or dominate the Program. Therefore, no one person was given authority (or responsibility) to direct the development of the Program. This decision had the unfortunate effect of preventing, to a large extent, significant continued publicity, vigorous continued fund raising, continuous prodding of faculty and administrative participants, and effective salesmanship for the Program at all levels within the participating institutions and across the country. With these ingredients the Program could have flourished. It is also conceivable that effective IPGS administration could have altered institutional commitments.

Nonetheless, some of the accomplishments of the program are impressive, indeed. To summarize:

1. A thirteen year intercollegiate program involving over 300 students and almost 100 faculty in interdisciplinary seminars and other activities was successfully planned and maintained despite considerable changes in the nature of the institutions participating.
2. An effective program on interdisciplinary study at the doctoral level which produced graduates rated by many as truly effective college teachers was initiated and maintained at a high level of effectiveness during a period of time when the major trend in doctoral training was decidedly in the opposite direction.
3. A standard for effective intercollegiate cooperation elsewhere was established by this Program. Curricular and staffing innovations occurred on all of the participating campuses as a direct result of the IPGS cooperation.
4. The unusual length of this experimental Program has allowed for the production of a significant number of graduates. This coupled with the ample experiences of all others concerned with the Program will have yielded a generation of people experienced in organized interdisciplinary and intercollegiate graduate study, and a large amount of data on the subject which should benefit other institutions.
5. Even though opinions of the teaching colleagues of the IPGS doctoral graduates were that the great majority of graduates had demonstrated exceptional teaching competency including a higher than usual concern and ability for interdisciplinary approaches, it is not possible to prove that IPGS caused this effect. Surely, IPGS attracted people with a wider than usual breadth of experience and interest in such matters. Undoubtedly, IPGS contributed to the further development of these interests and skills.

As previously stated, it is the opinion of the majority of the participants contacted and of these investigators that the goals of the Program were and continue to be important and that, in general, interdisciplinary, and intercollegiate graduate programs should be continued.

Since the major reasons to which the general decline of the Program can be attributed are the historical change in institutional commitments, and the lack of adequate central administrative leadership and coordination, any continuation or reinitiation of this or any similar program should compensate adequately for these factors.

A brief summary of what we feel has been learned from the IPGS experience follows:

SUMMARY of Elements Essential
for a Successful INTERCOLLEGIATE Endeavor

1. High and continued institutional commitment as demonstrated both by financial support and personnel policies.
2. Effective, continued administrative direction. Up to 10% of the total yearly Program budget should be devoted to administrative support. This should take the form of released time or (preferably) completely separate administrative staff. Considerable effort and expense should be invested in publicity, fund raising and communication.
3. Heavy faculty involvement in all program planning. This should be supported through released time. Ample secretarial help should be provided.

SUMMARY of Elements Essential
for Successful INTERDISCIPLINARY
Graduate Programs

1. High and continued institutional commitment as demonstrated by financial and personnel policies.
2. Heavy financial support for faculty time including planning time. Planning should be conducted well in advance of implementation. This relates both to planning individual seminars and to long range planning.
3. Clear-cut administrative responsibility and ample financial support for administrative activities.
4. Ample opportunity for the proper faculty to be available for the Program. This involves: (1) identifying the faculty best qualified for interdisciplinary work, (2) selecting those who can work well together, and (3) determining the proper disciplinary mix. Faculty participant commitment and breadth of interest is perhaps more important than the exact disciplinary mix of faculty participants (at least up to a point).
5. Ample opportunity for faculty to repeat their experiences, learn from experience, and to pass this information on to other faculty participants.
6. Student participation in planning and evaluation.
7. Realistic student workload (reading list, etc.) which are available well in advance of the beginning of the semester.
8. Ample student financial aid in order to compete for good students.
9. Proper student field mix in any interdisciplinary course of seminar.
10. Avoidance of shallow survey-approach in any interdisciplinary effort.

address: "Recent Institutional Research on Graduate Education: Students Appraise Their Programs"

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Development in Higher Education
University of California, Berkeley

During the past three or four years the Center for Research and Development in Higher Education at the University of California, Berkeley, has been interested in examining the problems of graduate education. In 1964 the Center conducted a study in which Berkeley doctoral students appraised their academic programs, and in 1966 at the request of the U.S. Office of Education, it conducted a nationwide study of doctoral training for educational researchers. The report on the latter included recommendations for fundamental changes in the form and content of graduate education and suggested new organizational rearrangements for preparing doctoral students for research careers. The study of doctoral students included nineteen recommendations for strengthening the doctoral programs offered at Berkeley.

We have gained many insights into graduate education as a result of our studies and of course we are continually challenged by new questions which have emerged. To pursue information on these, the Center is about to undertake a two part study of graduate education which will focus on some of the basic questions confronting those who plan or administer programs at this level.

Broadly speaking, these questions are: What are, or should be, the goals of graduate institutions in an era of revolutionary change? What are, or should be, the differential characteristics in the organization of graduate programs compared with the organization of undergraduate programs? How can graduate schools continue to maintain quality in the face of increased enrollments and increased costs? What modifications are suggested in the organization and administration of graduate schools in view of the exponential increases and transcendental changes in various fields of knowledge? What are the distinctive characteristics of and how effective are those graduate patterns which have recently introduced a fundamental change? For example: Yale's new degree, the M.Phil.; Irvine's interdivisional program in administration; and the Claremont Graduate School's "cluster" plan for interinstitutional cooperation.

"The Berkeley Study"

For this session I have been asked to discuss our student appraisal of Berkeley doctoral programs which the Center undertook during the 1963-64 calendar year with the encouragement and support of our graduate dean, Dean Elberg.

In this survey we were basically interested in assessing the weaknesses and strengths in the program as perceived by students with a view toward developing recommendations for needed change.

The issues on which our study focused were identified in discussions with the members of Dean Elberg's Student Advisory Council, with doctoral student members of a Higher Education Colloquy, with approximately forty doctoral candidates in various fields of study, and with seven doctoral candidates in residence at the Faculty Club where I then lived. In these sessions, students freely discussed experiences which had expedited and/or stimulated their development and those which had hampered their progress or dampened their enthusiasm. Insight gained in these sessions was utilized in the formulation of a questionnaire. This instrument was designed to elicit campus wide data on the issues identified in the small group meetings.

It was sent to 3,165 doctoral students registered in fifty-six departments on the Berkeley campus during the Spring term of 1963. Seventy-two per cent of the questionnaires were returned in time to be included in the report.

A tabulation of the questionnaire responses provided the basis for the design of an interview schedule. Questions in the schedule focused on gaining deeper perspective on the problems raised by the questionnaire respondents and on learning what the student thought should be done about improving the quality of graduate study. In addition, several questions were included to evoke responses which would provide some indication of the student's commitment to scholarship and of his own assessment of his academic effort.

The interview sample included one hundred students, representative of the broad academic divisions at Berkeley (Humanities, Social Sciences, Professional Schools, Physical and Natural Sciences, and Biological Sciences). Interviewees were selected who were at the dissertation stage. Interviews ranged from one to three hours and were conducted in my office. (Of the twenty-four hundred respondents, sixteen hundred signed their names to indicate their willingness to be interviewed.)

In his Discovery of the Future, H. G. Wells commented that "...The past is but the beginning of the beginning and all that is or has been is but the twilight of the dawn..."[1] As I reflect on events on the Berkeley campus during the past two and a half years, I have the feeling that in April of 1964 when the results of our study were reported, the dawn of student unrest was well over the horizon. I recall that at the WICHE Institute in the summer of that year, I commented that if our graduate students ever got together and organized we would have an explosion on the campus. In that same meeting Dr. Myron Wicke observed that the signs of student unrest were prevalent on many college and university campuses throughout the country. The so-called Free Speech Movement made Berkeley the locus of student protest that Fall. Thereafter Berkeley has not only become the Mecca for student activists, but it has been the testing ground for all sorts of new corporate unions whose goals include securement of greater student power. The Graduate Coordinating Council at Berkeley is an example of one of these new organizations. In general, the Graduate Coordinating Council waxes and wanes as crises arise or are averted on campus. Since Berkeley is seldom at a loss for a crisis, I suspect that this group may have a longer half life than most. At any rate, this is a new form of activity for the American doctoral student and it will be interesting to study its progress.

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[1] H. G. Wells, The Discovery of the Future (New York: Macmillan, 1913) p. 60.

Essentially, the results of our study show that the majority (83 per cent) of the Berkeley doctoral students believe that the university offers topnotch educational opportunities. Thus, given a choice, they would not elect to go anywhere else. Approximately the same percentage (82 per cent) were also satisfied with their fields of study.

Their appraisal of their major professors was less affirmative. Three-fifths in all fields would select the same man but 17 per cent would not and the remainder did not respond to this question or had no sponsor.

The fact that our respondents were satisfied with the overall aspects of their education at Berkeley should not be construed as indicative of the fact that they were also satisfied with the specifics. For purposes of analysis the problems they reported may be divided into two broad categories: one involving their personal, social adjustment and the other involving their encounter with what they describe as the "academic system".

Among their most pressing personal problems the respondents listed: (1) their marginal financial status, (2) the ambivalence of their roles and of their interpersonal relationships, (3) their self-doubts about their degree goals and about their ability to achieve that goal, and (4) their struggle to attain recognition in the face of the competitive ethos of their peers.

The respondent's academic problems arose mainly from: (1) the indefiniteness of his commitment to a scholarly life style during his first year of study, (2) the vagueness of his expectations apropos the nature of graduate work, (3) the inadequacy of his orientation into the department, (4) the tenuous character of his relationships with the scholars in his field, and (5) his inability to find any rational justification for some of the "rituals" in the requirements. As might be expected, there was considerable range in the intensity of these issues from one department or division to another. Age, sex, and marital status were likewise dependent variables.

A comparison of the profiles of the "typical" respondent in the professional school with the typical respondent in the physical sciences may illustrate this point.

The doctoral student in a professional school at Berkeley (Law, Optometry, Social Welfare, Public Health, Education) is married, has two or more children, is registered for four units of graduate study per semester, has been in the program four years, expects to take two or three more years to finish, finances his education by employment off-campus in a full time or a three-quarter time position, actually receives his degree at age thirty-eight, and is quite likely to continue working in the institution in which he is employed after he completes his program.

In contrast, the typical doctoral student in the physical sciences is married (although 47 per cent are single), has no children, is registered for full time study, finances his program through a grant, fellowship, or scholarship and, if employed, is so as a Research Assistant in his on-campus department, has been in the program two or three years, expects to complete it in a total of four, is twenty-seven years old when he receives his degree, and is very likely to spend an additional year at Cal or elsewhere as a post-doctoral fellow.

These distinctive differences probably have a direct effect upon the character of the candidates' future life styles and their scholarly productivity. Certain aspects of the respective graduate programs encourage or exacerbate these differences.

"Commitment to the Doctoral Degree"

Upon entrance into the doctoral program the variance in a students' degree of commitment to the doctorate per se may range from token to total. Only about half of the interviewees said that they began their advanced program with the expectation of completing it. The remainder began with a variety of reservations -- some of which appear to serve as defensive cushions in the event of failure.

A common practice for the older student is to rationalize an interest in a refresher course or two. His interest in the degree as a goal rises or falls with the grades he achieves in his initial effort. Until he assures himself that he can "cut the mustard" or "beat the system" he may express a "commitment to non-commitment" in terms of his desire for the degree.

Once the student passes his qualifying examination (which for many is threatening in terms of its implications for ego-involvement), he becomes psychologically aware that he is "in". This new sense of security accelerates rapidly if he finds a sponsor to whom he can relate. Some arrive at this stage only to find that no one is willing -- or knows them well enough -- to guide their dissertation effort. These generally join the ranks of the A.B.D.'s or transfer out.

"Orientation to the Doctoral Program"

The need for a more adequate orientation to the doctoral program was strongly voiced by at least a third of the respondents. Judging by the tenor of their comments, many new students hold obscure views of what the doctoral program intends, involves, or includes. Although many are caught up in the excitement of learning, some look upon the program as a series of rituals to which the student gives proper obeisance, or as a series of hurdles successively -- and successfully -- to be jumped. Some new students wander vaguely through a diffuse program of courses without seeing their relevance either to each other or to their degree goals. Although most of the one hundred interviewees said that they had had excellent and complete orientation to their degree programs, many first year respondents to the questionnaire said that they had had none. A causative factor in their failure to relate means to ends, or to become committed, may be the fact that two-thirds of the latter reported that (as yet) they had no sponsor or special adviser.

While members of a graduate faculty are probably reluctant to invest a great deal of time in a student who appears uncommitted on entrance, there was evidence in the responses that such investment did pay dividends to both students and faculty in those departments which have adequate orientation programs.

About one-half of the academic departments on the Berkeley campus provide their new students with mimeographed materials which outline the essentials of their graduate programs. However, by centering on what is required rather than on what is recommended, these forms tend to become regarded by students as "the department directives" or "the check list of hurdles".

The cogency of a personal orientation was emphasized by nine-tenths of the interviewees who credited their persistence in the degree program to the helpful advice and encouragement they had received from their advisers. The absence of this personal contact was also demonstrably evidenced by the questionnaire respondents, approximately 35 per cent of whom said that during their first year they had selected courses illogically, were unaware of the aids and facilities at their disposal, or had no clear knowledge of the various options in their fields. The fairly large number of students who said that they had no special adviser may be a critical factor in the student's lack of identification with the university and his image of it as an impersonal, bureaucratic institution.

The "feeling tone" of the orientation appears to be more important to many beginning students than the actual advice received. At this point the student seems to have all his perceptual antennae extended. If he has self-doubts about his intellectual ability, he savors any clue which might dispel his doubt. If he has confidence in his ability, he seeks affirmative evidence that the university and its faculty share his conviction. His identification with, or alienation from, the university appears to be shaped by the quality of the response he receives on his initial contact with the total institution--including its clerks and administrative personnel--although the faculty is probably more directly implicated in the formulation of these concepts than is any other single agent on the campus. Many students report that they were "warmed" by their initial orientation; on the other hand, 12 per cent said they were "cooled off" by this experience.

The survival rate for a student in the doctoral program appears to be positively related to the nature and degree of the orientation absorbed during his first year. It tends to favor those who have the ability to evaluate their own needs and who seek the appropriate means of satisfying them. Because the resources at Berkeley are vast and diverse, it takes the newcomer nearly a year to learn about the facilities and aids at his disposal. The dynamic character of these resources makes it imperative that he and the graduate department view orientation as a continuous process.

"The Married Student"

Married doctoral students have difficulty accommodating themselves to the conflicting demands of study and family responsibilty. Approximately 13 per cent of the married respondents said that marriage was a positive influence in their scholarly progress but 45 per cent said that this dual role posed special problems, was a source of tension, and provoked serious soul searching about the value of the Ph.D. The dilemma presented by the press of studies versus time to share with the family was a matter of concern for 41 per cent, who reported difficulties in striking a balance between these competing demands. Students in the professional schools reported more family problems than did students in other areas -- a fact probably explained by the marginal nature of their scholarly life. Fifty-three per cent of the students in this group said that they had inadequate time with their families and 21 per cent had inadequate time for study.

"The Single Student"

In general, single students reported fewer special problems than did married students, but apparently the life of the unmarried student has its trying moments, as may be seen in this comment:

> As a single student and new to this area, I found my first semester extremely lonely and at one point had made plans to transfer to an Eastern university where graduate housing was available. The graduate student here finds a solitary room, has small classes where a great percentage of the students are married....At a time in life when social life becomes less of a lark and more an important function, I found myself completely cut off socially. To date, this problem has caused me more stress than academic problems.

Many of the free comments expressed concern over the fact that interpersonal relations between the sexes were severely strained under the demands of academic life. Among married students, competing needs, such as isolation for the student and companionship for the non-student spouse, created difficulties, while the loneliness of the single student was intensified by his growing inability to communicate on a non-intellectual level or in fields other than his specialty. As a result of these conflicts, rifts occurred in some marriages and were a causative factor in some divorces. And some single students sought to resolve their problems by entering into temporary emotional relationships which frequently served only to compound their problems.

"Degree Requirements"

Lowell's protestation that graduate requirements have become so traditionalized and ritualistic that they tend to perpetuate mediocrity was supported by 49 per cent of the Berkeley doctoral students, who believed that some graduate requirements tend to retard intellectual progress and/or encourage minimal output.

The restiveness experienced by the mature autonomous individual under regulations that appear prescriptive or irrelevant to his goals was manifest by those respondents who, sometimes in acerbic statements, denounced "the rituals" or "the game".

"Foundation Requirements"

Many graduate departments at Berkeley require students to satisfy a basic set of foundation courses. In appraising these, 33 per cent said that the wide differences in the experience backgrounds of the doctoral students and the wide diversity of specializations within fields precluded the supposition that all should have, or will need, the same basic courses.

They argued further that this very diversity encourages the use of the lecture method; hence the dialogue between students and scholars does not evolve at this level and a pattern of student passivity is set.

Because this requirement is seen by students in some departments as "the first hurdle on the obstacle course", it tends to generate an unhealthy competition, to emphasize grades, to structure content, and to encourage learning patterns which lead to the mere collection of inert particulars rather than to the exploration of new ideas and issues. As a result of these factors, some students spend an unconscionable amount of time and energy "psyching out the instructor" in an effort to anticipate the kind of response that will satisfy his expectations.

"The Foreign Language Requirement"

Doctoral students seriously questioned the foreign language requirement as either a scholarly activity, a tool for research, a means of expanding one's knowledge in his field, or as an opportunity for exposure to another culture.

The large number of free comments on this item in the survey revealed a deep well of discontent, particularly among those students for whom the experience represented no more meaningful an objective than "fulfilling a requirement". More than half of the respondents described these examinations as an institutionalized ornament for which no rational justification was provided.

Students argued that; (1) there were excellent English translations of most of the scholarly foreign journals, (2) having studied the language, they never used it, (3) course bibliographies rarely, if ever, included foreign titles, and -- some added the barbed comment -- (4) many competent professors do not read in a foreign language.

Respondents were critical not only of the lack of purposefulness and utility in the requirement per se, but more specifically of the methods by which it was commonly fulfilled and with the levels of proficiency expected among the various departments.

The largest number of protests against the requirement as practiced were voiced by social science respondents (55 per cent), but nearly half of the humanities respondents (47 per cent) and more than two-fifths of the biological scientists (41 per cent) regarded the foreign language requirement as an experience which not only makes little or no contribution to scholarship, but also retards the progress and concentration of the candidate in his field of study.

In most cases, the rationale for the requirement was based on the notion that knowledge of a foreign language is a tool for research. There was monumental evidence among the responses that if it is a tool, it is one that wears out sooner from disuse than from use.

Foreign students had their own particular problems with this requirement. Too often it became a speed test because they were generally forced to translate the French or German into their own language before they could write it in English.

"Foreign Language Examination Standards"

The wide disparity in examination standards created a morale problem for some students who noted that the level of expected proficiency varied greatly. Some were required to qualify by precisely translating four or more pages of complex material without the use of a dictionary; others fulfilled the requirement with a semi-literal translation of a simple text with the use of a dictionary.

The number of examination pages ranged from less than one page to seven pages. The average examination was two pages to less than three pages in length. Social science majors were given the longest examinations, the biological science respondents were given less than the average number of pages. Ninety-five per cent of the interviewees said that they could not justify foreign language as an aid in their dissertation research. In fact, some said they took their examinations after they had completed their research. This bears out recent finding at Duke University where investigators found that out of 270 doctoral dissertations only 12 per cent of the bibliographies included titles from foreign journals. Many of these were available in English translations. Also most of those who gave foreign titles had had residence abroad or were natives of the foreign country in which the report originated.

In general, complainants saw the foreign language requirement as one of the non-functional hurdles or a "custom which no longer serves any real purpose".

"The Qualifying Examinations"

The oral qualifying examination was listed by students in all divisions as the most stressful experience in the doctoral program (by 64 per cent in the biological sciences, 62 per cent in the social sciences, 60 per cent in the physical sciences, 57 per cent in the humanities, and 35 per cent in the professional schools).

Tension was heightened for some who believed that they would "make or break" their future careers on the basis of their performance in a two hour examination. If one is to judge by the number of references made to "friends who had been washed out by the orals," the experiences of other graduates loom large as a stress-producing element in the oral examination. Many students graphically described this experience who had not yet faced it.

There were implications in the free comments that the normal stress aspects of the orals were accentuated by the fact that students approached them with little knowledge of their structure, their scope, the standards for performance,.or without previous formal experience in the oral defense of their knowledge or points of view. The aura of mystery which surrounded this examination impelled many students to overprepare.

The written comprehensive examinations appeared more defensible as helpful learning experiences than did the oral examinations. Students apparently found preparation for these examinations rewarding because, as they reviewed and reorganized the body of knowledge in their field, they gained new insights and reinforced their learning.

"Selecting the Research Topic and Writing the Dissertation"

For many respondents the selection of a research topic and the writing of it was a painfully drawn out process executed in frustrating isolation. To some extent this is the student's choice. Apparently the urge to be independent is strong at this stage. Many interviewees made it a point to tell me that they have neither received nor asked for help in either the selection or writing of their research project. Berelson found similar responses among his sample, so I suspect this might be indicative of the doctoral candidates' ego needs.

Over 80 per cent of the respondents reported that they enjoyed a high degree of freedom in the selection of their dissertation topics. Only 3 per cent said that they had limited freedom.

About a third of the students said that they would like more direction at this stage. Four per cent would prefer less.

Writing the dissertation was a fruitful experience for the great majority of the interviewees in all divisions, although 26 per cent in the biological sciences, 12 per cent in the physical sciences, 6 per cent in the social sciences, 5 per cent in the humanities, and 1 per cent in the professional schools said that this experience had not been fruitful. (These data may reflect a need for distance before judgment can be measured concerning this item.)

Interviewees reported that one of the major problems at the dissertation stage was to confine their research data within manageable limits. Many advisers served an important function at this stage, but apparently some prefer to let their advisees sink or swim, an attitude which often results in frustration, lost time and effort, and discouragement for the student.

It is clear from the interview data that a majority of doctoral students prefer to work on their dissertations independently, but it is equally clear that advisers can be helpful to other individuals who do not work well in isolation. For some, the adviser served effectively as a prodding agent or a catalyst; for others, he was a source of information or an audience on whom the student tested the soundness of his thesis. In general, advanced students seem to want their advisers to accept them as members of the community of scholars and to accord to their research efforts the same level of interest and consideration professors grant to professional colleagues.

"The Selection of a Sponsor"

The process of selecting a sponsor was a complex, anxiety-producing experience for many students. In some cases students said that the choice of sponsors did not rest with the student, either because they were assigned by the department or because only one faculty member was available. There appeared to be much shopping around for a sponsor and several interviewees reported that they had been turned down by the man with whom they had come to study. One foreign interviewee said that he had been urged to come to the university by one of its faculty members whom he met at a conference in his native country. He came only to find that the professor was interested in his own projects, not in directing student in theirs.

These data imply that a more satisfactory method is needed for assuring the student who invests in the degree program and performs satisfactorily that he will received appropriate guidance and direction. Obviously, no professor should be required to sponsor a candidate in whom he has no confidence, but a student should not have to spend several years in graduate school before he discovers that no one is willing to sponsor his candidacy.

"The Role of the Major Adviser"

The quality and character of the relationship between the doctoral student and his major professor is unequivocally the most sensitive and crucial element in the doctoral experience, for it not only influences the graduate student's scholarly development but also has far-reaching aftereffects.

When interviewees were asked to describe the role they thought their major adviser should play as he guided them through the degree, the answers indicated that they saw him in many roles. Essentially, they expected him to be a critic but a constructive counselor, a relentless taskmaster but a supportive colleague, a model of scholarship but an understanding tutor. They can accept the adviser in the character of a benevolent martinet, but they consider "the attitude of the master sergeant toward the private uncalled for in the academic environment." As a group, respondents were critical of the major professor who dictated rather than directed. Students said that they wanted advisers to be knowledgeable about the degree process but also personally aware of the student and his needs. Over 80 per cent said that the ideal adviser was one who briefed them on the hurdles they would encounter in the program and on the strategy through which the hurdles could be overcome successfully.

Over half of the respondents reported that they had been motivated to matriculate at California because of the presence on the faculty of the man with whom they wished to study. Unfortunately, disenchantment set in very soon for a number of interviewees who found that, once enrolled, they had to fend pretty much for themselves. Approximately a fifth of the respondents described their adviser as a remote figure who was so absorbed in his own research or publications that he tended to deal perfunctorily with students or projected an impression of harried preoccupation or disinterest. The advanced student was somewhat better off than the first year students but he, too, reported serious problems of communication.

"Student Ratings of the Major Adviser"

When students were asked to rate their major advisers on accessibility, 77 per cent of the biological science respondents rated them "excellent" or "high", as did 69 per cent in the humanities, 67 per cent in the physical sciences, 60 per cent in the professional schools, and 56 per cent in the social sciences. About a tenth of the physical science and professional school participants and 6 per cent in each of the other areas rated their advisers "low" or "very low" on their accessibility.

Apparently a large number of graduate students are not inclined to press for opportunities to confer with their advisers. A fourth of the social science respondents and approximately a third in other fields said that they believed that their major professors should schedule regular meetings with them to determine their needs. These responses checked with the fact that more than three-tenths of the respondents thought that professors should initiate conferences, rather than leave it to the student to seek a meeting as he saw the need. While most students at this level prefer to be on their own, there were many who felt that they would profit by periodic reviews of their progress.

One of the most serious criticisms of the major professor, which was voiced by 27 per cent of the respondents in the various divisions, was related to the candidates' belief that the major adviser really did not know his students' professional interest, academic ability, or stage of progress in the degree program. More than 40 per cent of the respondents in every area said they would like their major advisers to give them more assurance and evaluation of their status than they currently did.

Students placed much of the blame for poor student-faculty relations on the university system which rewards its faculty more for research productivity than for teaching effectiveness. Although they respected the research scholar, graduate students resented the high price they sometimes paid in terms of reduced opportunities to interact with professors or in terms of poor instruction quality. The "publish or perish" concept was frequently singled out for criticism, and students often implied that their interests were set aside in the interests of the faculty's research. Interviewees said that the overemphasis on productivity resulted in a vicious circle in which publishing became the means as well as the ends of research.

In contrast to these criticisms, at least three-fourths of the interviewees were able to identify an outstanding professor or researcher who had encouraged them in their efforts and restored their faith in scholarship. Apparently many students respect their advisers as adequate models of scholarship and are grateful for their association. But this is a critical problem in some departments and one that requires serious consideration in view of the long-range aftereffects.

"Effects of Graduate Study on Students' Self-Concepts"

When students were asked whether the university environment encouraged independent thought, about three-fifths replied that it did, a fifth were "uncertain", and approximately 18 per cent said that it did not. Two per cent did not respond to this question.

Social science and humanities students viewed the university environment as less conducive to independence, and physical science respondents found it more conducive than did respondents in other areas. Students in the humanities were especially critical of the university on this point. Only 58 per cent were satisfied with the degree of freedom they experienced, while 18 per cent said that the university did not provide an academically free environment and the remainder were "uncertain" or did not answer the query. These data illuminated the differences in divisional representation in the various Free Speech Movement activities.

"Graduate Student Interaction"

Based on survey and interview data, there appears to be more positive, scholarly interaction among respondents in the biological and physical sciences than among students in other divisions taken as wholes.

Interviews with students from the various divisions strikingly emphasized the fact that students in the experimental fields tended to have stronger ties of collegiality than did students whose research was of an individual nature. The latter generally worked in isolation and rarely had an opportunity to verify or fortify their insight with that of others who had interest or competency in their field. In contrast, students in physics generally worked in groups of five or six to collect data for one another, to arrange it, to offer new perspectives on it; and to analyze it before it was submitted for approval. Because the whole group was aware of the nature of the research that each of the others was doing, "mock orals" were often used as supportive preparation for those who would soon face their committees. The comment of one interviewee was fairly typical:

> Research in physics is group-oriented. Usually you help someone else on his thesis. This helps you too to learn the ropes. There is a free and open exchange of ideas. (We have) no pecking system -- you realize that if someone joined the group ahead of you, he will get his Ph.D. ahead of you. Students assist one another on routine data-collecting and bookkeeping. We work well together -- make checks -- students will do the same for you....

The supportive stimulus character of graduate student interrelationships was described by one of the interviewees as a "relationship of commiserators and stimulators" who assisted one another when things looked adverse or discouraging.

Although the majority of the interviewees accepted competition among graduate students as "expected in a race where, presumably, only the fittest survive", many mentioned that they personally knew students more intelligent than themselves who had failed.

According to the survey data, graduate students played a strong role as pacemakers for one another. This generated a strong competitive spirit which threatened some and challenged others. In their free comments and in the interviews, many students noted that competition for grades was often excessive and had the effect of emphasizing fact-gathering more than reasoning ability. For some, getting an A was all-important because the "ability to pull down an A is the criterion for eligibility for graduate awards, i.e., the research or teaching assistantships."

Some results of this competitive pressure were seen in the data which showed that 47 per cent of the social science respondents, 46 percent in the humanities, 39 per cent in the professional schools, 31 per cent in the biological sciences, and 27 per cent in the physical sciences reported that some of the best students dropped out of the program voluntarily.

"Effects of Graduate Study on Research Interests"

The vast majority of the survey respondents reported that their doctoral programs had challenged them to think analytically and had increased their interest in research. However, approximately 13 per cent in all areas said that their research interests either had not increased or had decreased as a result of the doctoral study. Among those who were interviewed were many who reported that they had ambivalent feelings on these points. The majority cited their ability to think more systematically and critically as one of the most rewarding aspects of their doctoral experience, but at least half exercised that critical ability by voicing disappointment with much of the research in their fields.

As a result of this study, nineteen recommendations were made. These included suggestions for strengthening the orientation program, the advising system, and faculty-student relationship. It also recommended changes in admission practices, in requirements, in the grading system, and in interdepartmental or interdivisional relationships. I'm happy to report at this writing many of these recommendations have been implemented.

-- THIRD GENERAL SESSION, MONDAY, March 6, 1967 --

presiding:
william j. burke

theme:

AIDS TO ADMINISTRATION IN THE GRADUATE SCHOOL

address: "The National Endowment for the Arts and the National Endowment for the Humanities"

Harold F. Ryan, S. J.
Loyola University of Los Angeles

"Background Statements"

On September 29, 1965, President Johnson, bringing to fruition his long-standing interest in the humanities, signed P. L. 89-209, creating the National Foundation on the Arts and the Humanities, containing two separate but closely cooperating entities, the National Endowment for the Arts and the National Endowment for the Humanities.

Each endowment is given guidance and advice by Councils of private citizens, appointed by the President. Each Council is composed of 26 members plus the Chairman. In each case the Council Chairman serves as the chief executive officer of the Endowment.

Coordination is achieved through a Federal Council on the Arts and Humanities. The Federal Council has nine members, as follows:

The Chairman of the National Endowment for the Arts;
The Chairman of the National Endowment for the Humanities;
The U. S. Commissioner of Education;
The Secretary of the Smithsonian Institution;
The Director of the National Science Foundation;
The Librarian of Congress;
The Director of the National Gallery of Art;
The Chairman of the Commission of Fine Arts; and
A member designated by the Secretary of State.

The term "the arts" includes, but is not limited to: Music (instrumental and vocal), dance, drama, folk art, creative writing, architecture and allied fields, painting, sculpture, photography, graphic and craft arts, industrial design, costume design, sound recording, and the arts related to the performance, execution and exhibition of such major art forms.

The term "humanities" includes, but is not limited to, the study of the following: language, both modern and classic, and linguistics; literature, history, jurisprudence, and philosophy; archeology; the history, criticism, theory and practice of the arts; and those aspects of the social sciences which have humanistic content and employ humanistic methods.

"We have proven our scientific and technical genius...Science can give us goods -- and goods we need. But the humanities -- art and literature, poetry and history, law and philosophy -- must give us our goals."
President Johnson

1. INTRODUCTORY. -- In order to restrict this report to a brief summary of current activities of the National Endowment for the Arts and the National Endowment for the Humanities I have given a statement of origins, organization, and definitions in the handout. Everyone here is no doubt familiar with these items but they may prove handy for reference.

This report deals mainly with the National Endowment for the Humanities. I apologize for the omissions but the short time available for preparation did not allow me to obtain adequate materials on the National Endowment for the Arts. (I am indebted to Joan Rafter, of the staff of the National Endowment for the Humanities for much of the material incorporated in this report.)

2. APPROPRIATIONS. -- According to HIGHER EDUCATION AND NATIONAL AFFAIRS (newsletter of the American Council on Education) the total appropriations for fiscal 1967 were $9 million. This total includes $6 million for the Arts, of which $2 million is earmarked for distribution to the states; $2 million for the Humanities, and $1 million for administration.

The budget request for fiscal 1968 is $16,300,000. No breakdown was given.

3. CURRENT PROGRAMS OF THE NATIONAL ENDOWMENT FOR THE HUMANITIES. -- The program of this endowment can be listed under three headings: (1) development of individuals supported through the Division of Fellowships and Stipends; (2) development and dissemination of knowledge supported through the Division of Research and Publication; (3) the improvement of teaching and programs aimed at the general public supported through the Division of Educational and Special Projects. I shall take up these three areas in turn, give a brief outline of the objectives, and name some of the typical awards which have recently been announced.

4. DIVISION OF FELLOWSHIPS AND STIPENDS. -- There are three fellowship programs: (1) For senior scholars. These fellowships provide to individuals of already distinguished achievements as humanists a year of uninterrupted writing and necessary travel to enable them to make distinguished contributions in their fields. (2) For younger scholars. These fellowship programs provide a period of up to 8 months for writing and research. (3) For younger scholars. These fellowships provide for one summer only.

On February 1, 1967, the National Endowment for the Humanities announced the award of its first fellowships, totaling $1,900,000. The February 1 awards include: 57 Senior Fellowships; 100 Fellowships for Younger Scholars; 130 Summer Fellowships. The release listed the scholars receiving these grants. They are distributed through forty-five states and the District of Columbia.

5. DIVISION OF RESEARCH AND PUBLICATION. -- Three programs of support have been initiated in this area: (1) for support of research projects and research aids; (2) for support of international aspects of scholarship; (3) support of publication, at present primarily of editions of major American authors.

On February 8, 1967, Barnaby C. Keeney, Chairman of the National Endowment for the Humanities, announced 69 grants for scholarly research projects, totaling approximately $936,000.

Typical examples of these grants are: a study of the special characteristics of the generation of Washington and Jefferson; a study of the political process in American communities during the 19th century; an archaeological excavation in Tuscany which will involve the training of American Students; an international project in Chinese history which should clarify the character of China today; and a compilation of American Colonial court records illustrating the development of the concept of individual freedom.

6. DIVISION OF EDUCATIONAL AND SPECIAL PROJECTS.--The grants in this area are aimed at strengthening the teaching of the humanities in secondary schools. These grants are both to organizations (e.g., foundations, school councils, associations, etc.) and to individuals.

On February 2, 1967, Barnaby C. Keeney, Chairman of the National Endowment for the Humanities, announced grants totaling $403,000 to further the study and dissemination of the humanities through educational projects. These grants include such projects as an Instructional Television Competition, a project to distribute books among disadvantaged children, a Talking Books Pilot Project, a study program for newspaper literary and dramatic critics, a summer humanities institute, a conference on the Alaska Purchase Centennial, and others.

7. MUSEUM TRAINING PROGRAMS. -- In a release on February 13, 1967, the National Endowment for the Humanities announced the initiation of two programs to expand the knowledge of museum and historical society curators in the field of the humanities and to encourage more students to make their professional careers in museums and historical societies. The allocation for support of these programs is approximately $213,000.

There are two types of programs. The Museum Internship Program will enable curators in small museums and historical societies to study in large teaching museums, where, for a designated time, they can broaden their knowledge through more effective use of their local collections when they return to them. The museums participating are Colonial Williamsburg; Ohio Historical Society; Bishop Museum, Honolulu; Field Museum of Natural History, Chicago; Museum of Northern Arizona; and six others.

The Museum Fellowship Program is designed to interest graduate students in pursuing professional careers in museums and historical societies and to make museums more active in graduate education. The University of Maryland; the University of Delaware; State University College, Oneonta, N.Y.; and George Washington University have programs.

8. JOINT GRANTS WITH THE NATIONAL ENDOWMENT FOR THE ARTS. --Some grants have been jointly funded by the Endowment for the Humanities and the Endowment for the Arts. These include a grant for a critical study entitled "Symbolic Landscape in Modern Poetry," and a grant for a biography of the Russian composer Alexander Scriabin.

9. SUMMARY. -- As announced at the beginning, this report concentrates on the grants by the National Endowment for the Humanities. Just an enumeration of the topics involved in the grants sketched above would constitute a sizable report and at the same time present a fascinating galaxy of humanities projects and programs. By way of commentary and conclusion I would like to quote from the First Annual Report of the National Endowment for the Humanities:

> In the next several years, one may hope that new approaches to teaching and research at all levels of the humanities will create the possibility of a genuine break-through. It is also entirely likely that increasing numbers of students, competition for funds, and the absence of a focused national effort to up-grade the humanities will cause such an opportunity to be missed. The Endowment expects to encourage as many promising avenues of qualitative improvement at all levels and in all fields as its funds permit. It hopes to serve as a leaven to draw attention to the needs and the satisfactions of the humanities. But it is well aware that the break-throughs must come in the final analysis from the scholars and citizens who labor to understand what the humanities can teach.

address: "Activities of the Office of Scientific Personnel, National Research Council"

M. H. Trytten
Director
Office of Scientific Personnel
National Research Council - National Academy of Sciences

Among the activities of the Office of Scientific Personnel which might be of interest to the Western Association of Graduate Schools, only a selection of these can be covered in the brief time allotted to this speaker, especially since one sector of the activities is being covered in a separate presentation by Dr. C. J. Lapp. His presentation will concern a group of programs under the general title of research associateships.

Perhaps the activity most directly related to the interests of Graduate Deans is that of the Fellowship Office. This Office saw a sustained demand in all except one of the fellowship programs with which it is associated. This demand for support of individual study and research was especially marked at the postdoctoral level. Applications in the NATO

Postdoctoral Fellowship Program, which is administered by the National Science Foundation, totaled 384; 45 awards were offered for study in academic year 1967-68. By way of comparison, last year there were 395 applications and 66 awards were offered. In the NSF Senior Postdoctoral Fellowship Program, 393 persons applied, and 65 awards were offered for next academic year. Last year there were 397 applications and 95 awards offered. The NSF Postdoctoral Fellowship Program - the "Regular" Postdoctoral Program for young Ph.D.'s - had only one competition this year instead of two as in former years. Nevertheless, the demand almost equalled that of both competitions last year - 1043 in the current year as compared with a total of 1070 in both competitions last year. Awards in this program have not been announced, but it is anticipated that there will be considerably fewer than last year when a total of 230 awards were offered. In the Postdoctoral Research Program, conducted by the National Research Council with the support of the Air Force Office of Scientific Research, 187 persons applied this year as compared with 150 last year. Fifteen awards with premium stipends and allowances are made each year to unusually able young postdoctoral investigators in this program; seven of the awards are for study at foreign institutions.

In the NSF Graduate Fellowship Program, the total number of applications by new applicants and renewal applicants this year is 8147 as compared with 9153 last year. In the neighborhood of 2500 awards will be offered in this program, but that number includes continuation awards to those who were offered two-year awards last year. The decreased number of applications is apparently attributable to the growth of traineeship programs conducted by several agencies, including NSF, but also to the realization that the NSF Graduate Fellowship Program has become extremely competitive and selective. Departments increasingly realize that only their best students should be advised to apply in this program. To those who have uneasily watched the number of applications in this program climb from year to year - increasing 17% last year - the leveling off shown this year brings a sense of relief. The great importance of the Graduate Fellowship Program as a national yardstick of individual excellence depends upon the careful evaluation given to its applicants. It is reassuring to see the numbers stabilize at a level at which such evaluation is possible.

A program of special interest this year was the recruitment and selection of scientists to serve as astronauts in the nation's space program. At the request of the National Aeronautics and Space Administration, the National Research Council advertised these opportunities, received and processed applications for them, and arranged for their evaluation by panels of scientists and engineers. The response was overwhelming - 922 applications of persons at the postdoctoral level were submitted to the Selection Panel for evaluation of their scientific qualifications. The first screening has taken place, and after a second review, recommendations of top applicants will be made to NASA. These finalists will be given further tests by NASA on the basis of which NASA will make the final selection of those who will be among those who will orbit the earth and explore the moon.

As many of you probably know, the Office of Scientific Personnel maintains a registry of all persons receiving the doctoral degree in the several disciplines in the United States. Through the generous cooperation of graduate schools in the country this registry is an approximately complete listing of all such individuals and now covers the period from 1920 to 1965 with most of the registrants for 1966 and a few for 1967 already in the files. Perhaps the best known publication arising from this data bank is a periodic publication reporting on doctorates granted by universities in the United States, by colleges and undergraduate origin and by doctorate-granting institutions. The next in this series will be entitled "Doctorate Recipients from U.S. Universities." It is now in the process of development and most of the tabulations have been made. Publication is to occur within the next few months.

The Office of Scientific Personnel has published five such statistical handbooks which summarize data collected in the Doctorate Records File. The first book in the series was published in 1948 and described data for 15,000 doctorate recipients; the fifth and most recent book was published in 1963 and presented information about 183,000 persons who received doctorates between 1920 and 1962.

A sixth handbook is now in process which will provide a detailed analysis of recent trends in doctorate education in the United States. This book will concentrate on the period FY 1958 - FY 1966, presenting data on the 111,000 doctorate recipients of that time. Forty-four per cent of all doctorates ever granted were granted during these nine years.

Tabular and graphic material in Book VI will be coordinated with the corresponding long-range historical trend data presented in Book V. The Book VI analysis will be more detailed than in any of the previous books. For instance, most tables will display data subdivided by 32 academic fields including social science, arts, and humanities specialties as well as natural science specialties; colleges and universities will be grouped into 14 categories for analysis of trends by type of institution; time lapse data will include not only the gross baccalaureate to doctorate time, but will show baccalaureate to beginning graduate school time, time out during graduate school, and total time registered in graduate school. This increased detail should allow the data to be of more use in institutional self studies or in the evaluation of educational programs.

A major feature of Book VI, as with previous books in the series, will be an extensive appendix section showing detailed data for individual institutions. Tables will show institution records as doctorate sources and as baccalaureate sources of doctorates by academic field.

The book will be divided into five sections plus an appendix:

(Part I) "Time Trends in Doctorates Granted, 1958-1966"

The section shows trends in doctorate production by academic field and trends in the number of doctorate institutions that grant 25%, 50%, and 75% of all doctorates. It lists the top doctorate granting institutions in each academic field and ranks the 50 States in doctorate production.

(Part II) "The Process of Doctorate Education"

Data show regional availability of doctorate programs in various academic fields and patterns of student transfer among types of colleges and universities. Time elapsed from baccalaureate to doctorate is shown as related to academic field, citizenship, sex, and type of undergraduate institution. The leading baccalaureate source institutions of the leading doctorate institutions are listed.

(Part III) "Transition from Doctorate to Profession"

This section indicates the changes that occur in professional identification and the geographic mobility at various career stages. It shows postdoctoral employer and work activity patterns by academic major. Special attention is given to the growth of postdoctoral fellowships for the period.

(Part IV) "U. S. Doctorates of Foreign Origin"

The geographic movement of foreign students is studied by showing the foreign countries from which they come, the type and location of schools attended in the United States, their academic fields, types of postdoctoral employers, and countries of first postdoctoral job.

(Part V) "Women Doctorate Recipients"

The data compare women and men on such variables as age at doctorate, time-lapse from baccalaureate to beginning graduate school, types of institutions attended, academic fields, and postdoctoral employment.

Appendix Tables

These tables present data for each of the 213 doctorate institutions and the 1294 baccalaureate source institutions. They show the numbers of doctorates by academic field from each institution for 1920-66 and 1960-66.

Present schedules call for Book VI to be printed by September 1967. This statistical handbook of Doctorate Record File data should be useful to educational institutions, government agencies, and professional societies as they evaluate the effects of various programs of doctorate production.

A number of other studies based on this data have been carried out. One of them has given rise to a publication which many of you may have seen called "Profiles of Ph.D.s in the Sciences." This is a study which was intended to provide information on career patterns of scientists who have graduated at various periods, going back some twenty years. A cohort of approximately 1,000 individuals in ten major disciplines was selected from those graduating in 1940, in 1945, 1950 and the latest cohort graduating in 1955. The employment, history, and other information concerning the career patterns of these individuals was developed. Charts and graphs were drawn depicting the characteristic of their careers as they have changed over time. This is the first phase of a three-phase study, the second phase of which is being carried out at the present time.

The OSP is now engaged in a major study of the traineeship and fellowship programs of the National Institute of General Medical Sciences. The purpose of this study is to develop information which can serve as a basis for evaluating procedures and characteristics of these programs.

The study will concern itself with the recipients, past and present, of the programs of this part of the National Institutes of Health as one phase of its scope. This population will be studied to learn their characteristics, their origins, their support other than through these programs in the course of their graduate careers, their eventual placement in the scientific labor force, and such matters.

A second phase of the study will concern itself with the impact and contributions of these programs on the institutions where these students went for their graduate programs.

This later phase of the program will involve various approaches to try to ascertain the effect of such programs on the milieu where fellowships and traineeships exist.

A distinguished advisory committee is guiding this study under the chairmanship of Dr. John A. D. Cooper of Northwestern University.

Another important program under way in the Office of Scientific Personnel is concerned with the postdoctoral population on American University campuses. As has been observed by everyone in the universities this population has grown phenomenally of recent years. Little comprehensive information on the characteristics of this movement is known. It is hoped to achieve a census of persons enjoying postdoctoral fellowship or comparable subvention, and to learn something of the nature of their support and its origin; to understand the variety of support programs; to characterize the holders of these appointments, their origin and eventual disposition, and their concepts of purposes and values.

At the same time the relationship with the host institutions will be studied, their responsibilities and relationships, interactions with the teaching programs, administrative controls and mechanisms and the like pertinent questions. The program is supported by multiple grants, public and private, and is expected to take two years.

In this case, too, a committee of distinction under the chairmanship of Dr. Sanborn Brown at Massachusetts Institute of Technology is guiding the study. The Director of the study is now Dr. Richard B. Curtis, Associate Director of the Office of Research - Graduate Studies at Indiana University, who has taken over for Dean Robert A. Alberty, who relinquished the directorship when he became Dean of Science at Massachusetts Institute of Technology.

address: "Programs of the Institute of International Education"

James M. Davis
Vice President
Institute of International Education

The Institute has been grateful to have a friendly, cooperative association with the Council of Graduate Schools in the operation of a scholarship program. Using selected overseas binational commissions and selection committees, composed of distinguished scholars in the various countries and resident Americans there, the Institute has combined its rather limited capability to supply travel and maintenance funds with the willingness of the graduate schools to supply tuition awards in order to put together a scholarship program which would provide the schools with outstanding foreign candidates. These panels are screened with care by the Graduate Deans Committee Meeting at the Institute each year.

Building upon this relationship, the Institute of International Education now has secured the cooperation of the Council of Graduate Schools in recommending a limited number of Graduate Deans for short-time overseas field service. It is our intention that these Deans be invited to go, perhaps two, three or four each year, to various parts of the world for approximately six weeks accompanied by a staff member from the Institute. This team would participate in this overseas selection in some cases, confer with embassy and binational foundation officers and members, possibly interview some of the American students studying in these countries under Fulbright awards, make contact with distinguished educators and Ministry of Education officials in the universities and governments of the countries, and in general help develop some fresh approaches to the whole question of the admission of foreign graduate students.

We at IIE are now presenting this program to potential sources of support. However, even if new funds are not available, we are prepared to invest rather heavily from our own resources in this endeavor because we feel that the Graduate Deans offer in many ways the most viable creative approach to the solution of some of the problems with which we are mutually concerned in dealing with the international exchange of students at the graduate level.

We anticipate that during the coming year, at the very least, we may be able to get one of these teams to Latin America and another one to the Far East. The year after that we hope that a second pair of teams may be able to visit Europe and South Asia. We see this as a long-range continuing program with ample opportunity for feed back and policy recommendations to be reported to the Council of Graduate Schools and to the Institute as well as to the Department of State.

In the last year or two the U. S. Abroad Program to Latin America has taken on quite a different complexion. For various reasons it has been decided to select candidates almost exclusively from among graduating seniors who can spend a year in a Latin American university but who may not be equipped to do sophisticated field research there. In order to achieve this objective, advanced graduate students seeking to do field research for their dissertations have been excluded from the competition. The reasons for the development of this policy are numerous and include the problem of taking care of dependents of the more senior students in Latin America, the availability of other more adequate grants for field research at the more senior level, and the desire to encourage informal relationships between the students from North America and the indigenous Latin American students. It is felt that these relationships might be greater in the case of the younger students who were attending classes than it would be in the case of the older students who were doing library or field research. We seek your cooperation in evaluating this policy in terms of its effect in Latin America as well as in the United States.

Another interesting project which is nearing completion is the analysis of the more than 11,000 foreign students revealed in the 1965 census of foreign students (published in Open Doors 1966) as intending not to return to their home countries. We are seeking to discover just who these students are in terms of their countries of origin, fields of study, graduate or undergraduate levels, source of financial support, etc.

During the past year or two we have also developed a new program to identify potential leaders for economic and social development in developing countries. We have no great certainty that we can identify such leaders but we are experimenting with various means to do so. Having identified them, we are providing them with special seminar opportunities to help them relate their formal study content to economic and social development at home and also with supplemental funding in order that they can complete their studies sooner with less outside work and return home to get on the job more quickly.

We are concerned with finding a solution to a problem which I believe has been faced and solved by most graduate schools. Our Applications for Study Abroad on the Fulbright and other programs include a Certificate of Language Proficiency. We are often shocked to discover that a student whom a professor of a language certifies has competence in the language actually turns out to lack that competence. How can we achieve greater accuracy in these evaluations without imposing a costly centrally-administered test?

Finally, you should know that our Applicant Information Service is better able to help you know which non-sponsored foreign students to admit. In some twenty-five countries we have trained interviewers who will see students in response to your request. They will then report to you with regard to the academic background, financial capabilities, apparent health, motivation and other aspects of the applicant -- within about six weeks after you transmit a request for such an interview to one of our overseas offices. The volume of such requests being addressed to our office in Bangkok for information on students in Hong Kong has become so great that last fall we placed a full time interviewer with secretary in Hong Kong and in a few weeks we are going to add a second professional to help him complete interviews there.

address: "Computer Information Systems in the Administration of Graduate Programs"

J. Alan Ross
Dean of Graduate Studies
Western Washington State College

In speaking to my topic "Computer Information Systems in the Administration of Graduate Programs" I note, as did Dr. Bunnell in an earlier statement, that none of us is likely to be a data technician. In fact, a data-technician-become-administrator must guard against ego involvement in techniques which are likely to become outmoded. Administrators who are to be effective participants in progress; who are to push the computer to its outer limits of performance, must emphasize conceptual rather than technical skills. I think that we may well spend a few minutes in which we "up periscope" and look at the major features of the shoreline in computer uses in order to make an estimate as to what is going on that may affect our operations as graduate deans. In examining the gross features of the shoreline we are likely to overlook submerged obstructions. These with certainty will be revealed by further reconnaissance or will be filled in by the local knowledge of those assembled here. Some among you may have already explored this country and may in fact have carved out some territory which you may wish to describe in extension of my non-technical commentary concerning computer use as I see it. The purposes of this presentation will have been met if there develops among us some heightened attitude of inquiry concerning the possibilities in computer uses where we will ask the further collaboration of our own on-campus computer staff while at the same time exchanging reports among ourselves regarding the capabilities and applications of computer uses.

The importance of computer use in information applications has been well established. John McCarthy in Scientific American, September, 1966 stated:

> "The computer gives signs of becoming the contemporary counterpart of the steam engine that brought on the industrial revolution. The computer is an information machine. Information is a commodity no less intangible than energy; if anything, it is more pervasive in human affairs. The command of information made possible by the computer should also make it possible to reverse the trends toward mass-produced uniformity started by the industrial revolution. Taking advantage of this opportunity may present the most urgent engineering, social and political questions of the next generation.
>
> A computer, as hardware, consists of input and output devices, arithmetic and control circuits and a memory. Equally essential to the complete portrait is the program of instructions -- the "software" -- that puts the system to work. The computer accepts information from its environment through its input devices; it combines this information, according to the rules of the program stored in its memory,

> with information that is also stored in its memory, and it sends information back to its environment through its output devices."

McCarthy makes a general case for computer information systems. A more specific reference to computer science in the administration of higher education is contained in a statement taken from G. Truman Hunter -- Journal of Educational Data Processing, Fall, 1966.

> "At the close of a five-day educational conference held at the University of Denver, November 8-12, 1965, a summary statement formulated by 18 persons from 13 different educational institutions in the nation included the following observations:
>
> > 'The administrators of educational institutions are confronted by increasingly complex problems resulting from rapidly increasing enrollment, the demand for quality education, and the explosion of knowledge. In order to meet these problems administrators need more, better, and timely information. Such information can best be provided by a total information system...now practical through data-processing technology at an economically feasible price. This technology includes: remote terminals, high-speed processing, and large storage capacity.' "

Few, if any, of us are utilizing computer technology in a manner implied by the last sentence: "'remote terminals, high-speed processing, and large storage capacity' with programs of software which exploit computer capabilities in the interest of our needs." It has been said that the successful administrator functions well in the midst of ambiguity. I am venturing the opinion that we might remove some measure of ambiguity without the risk of immediate technological unemployment. There will always be enough ambiguity to provide a secure setting for our administrative genius.

As we look at the shoreline of computer use, four generations of practice seem discernible. Check these to see where you find yourself:

1..... The first generation, where the greater number of us may now be operating, involves card punched data processing, at speeds appropriate to the nature of the task.

Doubtless each of us here has a tabulating system which permits us to commit to a punched card deck, detailed information concerning each student and his progress through a program of study. Courses, grades, advisors, test scores, advancement information; all these may be reduced to orderly categories and made available to periodical print-out either in total summary or by such categories as a mechanical sorting makes possible.

This generation is technically pre-computer since both storage and retrieval of information is by mechanical processes.

This stage, however, is crucial in providing a data base which can utilize the greater capabilities of computer information retrieval.

2..... The second generation of computer use involves an integrated system capable of random access to disc storage. We have an I.B.M.1620 which meets these criteria. The data, punched on cards, are logged and stored on discs for convenience of retrieval. Individual records can be up dated. Access to the disc stored information can be accomplished through programs which are <u>specific</u> to the various tasks. Where formerly it was necessary to conduct a physical card sort if we wanted student or faculty data this system will respond immediately to stored programs in accomplishing the specific task.

3..... The third generation involves more sophisticated hardware and infinitely more sophisticated programming. A newly available set of computer programs--the GIS or Generalized Information System now provides the software for a total information system. GIS is generalized in that it is not dependent on fixed data structures and organizations and fixed processing tasks. It is designed to be "device-independent", operating within the framework of the I.B.M. Operating System 360. We can move quickly to an understanding of this third generation of computer information system applications when we consider these situations:

<u>ASSUME</u>: You and I are discussing the relevance of Miller Analogies Test Scores to the prediction of success in Master of Arts degree work in English or History. At a keyboard terminal in my office on-line with an I.B.M. 360 Computer utilizing the Generalized Information System, we address the Computer thusly:

```
QUERY GPA
IF MATRS LT 60
MAJOR EQ ENGLISH OR HISTORY
LIST STUDNBR STUDNAM COLLGPA AVGPA
END QUERY
```

or We are discussing advisory load particularly as it relates to the distribution of thesis chairmanships. It is asked if anyone has five or more such assignments. So we ask:

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QUERY CHNBR
IF CHNBR GT 4
MAJOR EQ ANY MJR
LIST FACNAM MAJNAM
END QUERY
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We can compare the GPA of teaching assistants with students working full time on their studies. We can retrieve and display information related to faculty load, or any aspect of administrative operation for which data has been stored. We can be involved in instant research in all aspects of administrative planning and control.

We look forward to the installation of the 360 system at Western. It is known that it will take time to install and to build up the system -- that there will be cutting and fitting. It is not something that can be plugged in and turned on like a radio. We have encountered some apprehension that enthusiastic, non-technically qualified administrators may tax the capacity of the computer, versatile as it may be. Obviously there must be included a system of security or access to confidential data. The GIS, however, allows a maximum of 128 security categories. Each installation can determine the distribution of access codes to individual users. One condition thus to be avoided is the assignment of virtually identical tasks simultaneously from separate remote terminals.

4..... The fourth generation will utilize hardware and software no more advanced than the third. The advance will lie in the linkage between institutions which will permit information exchange related to persons and programs. The process by which we notify of graduate grants, awards, and assistantships, for example, is crude and wasteful. A glance at any bulletin board in a college corridor will substantiate this statement. We need to use the information systems through which the aspirations and interests as well as the specific abilities of students can be matched to the specific concerns and characteristics of faculty members and programs in a number of institutions.

Students write us and we ask for transcripts which in due time arrive. We will, perhaps, never dispense with transcripts. We should, however, be able to provide to each other, on an almost instantaneous basis, visual or printed displays of students' records.

Some years ago I became interested in the concept of "real time" as it relates to military tactical data systems. When speeds are expressed in Mach numbers and solutions involve intercepts and weapons systems employment, outputs must be in direct or unbroken time series with inputs -- if the solution is to be relevant to the existing situation. Plotting boards displaying the alleged position of "angels" and "bogies" or "bandits" may as well be devoted to tic-tac-toe. The action is elsewhere.

If you step aside from the path of an on-coming locomotive this is a "real time" reaction. If you choose to search through your briefcase for a commentary on the speed of locomotives, it can be said that you died dedicated to research. This is not a "real time" reaction.

> Many of our actions may be of the second sort. We survive only because we control the speed of the locomotive. But in whose interest?"

It is probably true that man once possessed access to data which provided an adequate repertoire of relevant "real time" reactions to meet the problems which he confronted. This was in his preliterate development before he began to give symbolic formulation and representation to life situations and to write messages to himself and others. The cynic may say that much of what we have come to call the rational approach consists in the devising of constructs which obscure our absence of access to relevant data.

McLuhan can taunt us with the allegation that "the media has become the message". We man our academic administrative plotting boards while the action occurs elsewhere. But there is a remedy for this. With a computer system we can confront the world with the simple confidence of an earlier man who routed the cave bear from the lip of the cave before the children arose and crawled out to harass it in the open.

We must utilize the information systems which are available, if the essential characteristics of good graduate study are to be preserved. The breaking point in close personal relationships and personal identity with programs comes when student numbers become so large as to make it impossible for the storage and retrieval capacity of the human brain to bring relevant or even recognition data to bear upon a situation of counselling or decision making concerning a student. Inevitably, delay must be established -- Get a transcript! -- Check the files! -- real time reactions are not available unless we improve our procedures. The bitterness associated with the "do not fold, spindle, or mutilate" arises because we have not adopted procedures which have permitted us, as McCarthy suggested, "to reverse the trends toward mass-produced uniformity started by the industrial revolution". We have made great progress in mass data processing but we have stopped short of the important goal. Our next steps will take us quickly into the area of individualized information service to students and advisors. This will permit us to preserve and to extend the personal relationships which are an essential component of graduate study.

We cannot administer programs which place young men and women, exploiting their highest intellectual potential, at the frontiers of knowledge, using medieval, administrative means ourselves. In this context a lag of 5 years, perhaps 1 year, consigns us to another age.

We have lived and are living at the pivotal point in what is coming to be recognized as one of the great periods of explosive acceleration in the application of technology to the enhancement and expression of man's physical and mental powers. Let's have a part in this.

address: "Standards and Procedures for Advanced Degree Examinations: A Forthcoming UCLA Handbook"

C. S. Whitaker, Jr.
Associate Dean for Student and Academic Affairs
Graduate Division, University of California
Los Angeles

> " In accordance with By-law 105 (B) (7) adopted May 16, 1966, standards and procedures related to the conduct of the examinations for graduate degrees will be published in a handbook and distributed to all senate members ."

This paragraph appears in the revised (1966) edition of the Academic Senate Manual, Los Angeles Division of the University of California, and officially marks the University's venture into an entirely new area of academic legislation. Indeed, the chairman of the UCLA Graduate Council, in the Annual Report of the Graduate Council, 1965-66, commented that to his knowledge

> this document is the first of its kind to have been formulated at a major university and it is designed to eliminate a good deal of uncertainty over what graduate students think is expected of them.....it attempts to set down clearly Council policy on such questions as the constitution of examination committees, the role of "outside" members, the right of the student to re-examination should he fail, the authority to nominate and replace members of the examining committees, and a number of other related points . In general [however], most of the specific decisions are left up to the department and the examining committee ...[and]... the Graduate Division has requested each department to submit its own policies on matters left to the discretion of the department (or inter-departmental committees). ...this brochure should be of invaluable help to students, faculty, and administrators .

My remarks here are intended to present something of the history of this innovation at UCLA on the assumption that it may be of wider interest.

Upon entering the UCLA Graduate Division three years ago as Associate Dean for Student and Academic Affairs, I soon discovered to my dismay the absence of a body of formal policy governing a whole host of significant matters on which I was expected to make decisions in the name of the University. It also soon emerged that most of these matters directly or indirectly concerned those very aspects of graduate education which, superficially at least, traditionally help distinguish it from undergraduate work, namely: comprehensive and qualifying examinations, theses, dissertations, final orals, and the faculty committees responsible for these activities.

The apparent policy vacuum was of course being filled informally, but that much of the substance should exist solely in the head of a dean seemed disquieting -- I was simply too green to sit back and enjoy the situation. Doubtless, I would have soon done so were it not for the reinforcing awareness that others shared my misgivings, not least the students, but also some department heads and advisers -- if for no other reason than that from time to time they themselves had trouble making a certain decision or finding justification for it. Then they expected a dean to do the job.

The prevailing system, or rather absence of system, worked perfectly well of course -- so long as no conflicts arose. But when (however infrequently) they did, the parties involved invariably deplored the lack of any authorative statement of their rights and duties. For example, a student who passed three out of four written examinations on his Ph.D. qualifying examinations would demand to know whether he was required to retake examinations in all four fields or just the failed one. The answer varied not only from department to department, but in some notable cases, individual students in the same department were treated differently in identical circumstances. Similarly, one (faculty) committee member might assume that his negative vote on an oral examination performance would mean the student had failed the examination, while others took it for granted that the majority assessment would prevail and hence that one negative vote was not decisive. Neither assumption rested on firm rules. I am sure that the experience of each of us here provides ample illustrations of the basic problem.

The antidote to this widespread condition of uncertainty and insecurity was obviously legislation, which is, after all, the best expression of those principles of generality and prospectivity of decisions which are the antithesis of arbitrary or capricious exercise of power. But if legislation were such an obvious solution, why had some not been formulated before? In the blush of original innocence, I initially concluded that it was because no one had thought of it. In retrospect, I should rather more soberly say that it was because no one wanted to think about it, at least not long and hard enough to create a corpus of explicit rules, and for good reason. No, the reason was not simply poverty of imagination, nor bureaucratic inertia, nor even chronic academic evasion -- though all these tendencies duly contributed, to be sure. Instead, in the eye of the void, as it were, was to be found exactly what in a university one might expect to find: hoary philosophical cleavages! I believe that almost instinctively the University had been discouraged from seeking to legislate itself out of a highly muddled situation by the very depth of the controversial issues involved.

The discussion which followed the presentation to the Graduate Council of the proposal to legislate revealed that basically there were two major issues, interrelated but distinct: 1) proper jurisdiction, and 2) proper legal approach. On the first issue the University was divided between unitarists and pluralists, that is to say, between those who thought that the matters concerned ought to be the responsibility of some central authority and those who thought they were strictly each department's business. Opposing doctrines were likewise associated with the second issue. On this one, there were what might be called the Continental versus Anglo schools -- the one favoring substantive codification of law, the other preferring to have law take the form simply of case to case adjudication based on precedents and due process. These four doctrinal categories are of course derived by inference from the exchanges that actually took place in the Graduate Council and elsewhere on campus, but I think this interpretation is fair and helpful.

The forthcoming booklet entitled Standards and Procedures for UCLA Advanced Degree Examinations reflects a workable compromise of all these viewpoints. As such, it goes a long way toward allaying the fears which the prospect of such a document raised: inflexibility, loss of control (I think the spector of graduate students -- whom a colleague of mine once characterized as born "classroom lawyers" -- actually armed with a text! was alone enough to terrify a lot of professors), unwieldiness, rigid and misplaced uniformity, impersonality, etc. Perhaps the critical edge of the decision to legislate was the general feeling that all the dangers involved were more tolerable than just not knowing what to expect.

The key to an acceptable compromise I think was to divide jurisdiction so as to enjoy university-wide policies on some standards and procedures while leaving a wide range of these to each department's discretion. Where departmental discretion is exercised, the crucial difference between the old order and that created by the commitment to introduce a handbook, is that now departments are obliged to specify and publicize their standards and procedures on matters they deal with, if only to the extent of clearly informing their constituents that all decisions on a given question will be ad hoc (but of course the general impact has been to sharply reduce the number of ad hoc standards and procedures).

The facing page shows the division of responsibilities with respect to the principal functions in connection with advanced degree examinations.

Worth noting is the fact that several months intervened between the Council's resolve to legislate and the first suggestion that it do so. The Council's first step was to request a "white paper" from the Student and Academic Affairs section of the Graduate Division. The charge was to delineate specific features of the examination process to be looked into and to make policy recommendations. This paper partly took the form of an itemized list of relevant matters about which serious confusion or misunderstanding existed in the University. Each such item (there were eighteen in all) was accompanied by a statement of the seemingly pertinent considerations involved, various alternative solutions, and the solution favored by the Graduate Division. The deliberate advantage of this format was that it encouraged the Council to come to grips with the issues one by one rather than to dwell unduly on abstract doctrines or on the grand proposition of whether to act at all. It also permitted the Council to respond differently on particular items (in terms of the unitarist-pluralist and Anglo-Continental principles), thus facilitating the process of compromise. An excerpt from the "white paper" will illustrate its general approach (see page 60).

Division of Responsibilities with Respect to Principal Functions in connection with Advanced Degree Examinations

Standards and Procedures to be determined by GRADUATE COUNCIL	Standards and Procedures to be determined by DEPARTMENTS and INTERDEPARTMENTAL DEGREE Committees
Constitution of committees Doctoral and master's (thesis plan) Nomination and appointment Replacement of members	Departmental guidance committees Constitution Nomination Responsibility for departmental screening and written qualifying examinations
Examinations (doctoral) Role of department chairmen in conduct of examinations Evaluation of student performance Degree of consent Final oral examination	Examinations Departmental screening examinations Master's comprehensive examinations Level of performance on written qualifying examinations required for eligibility for oral qualifying Reexamination (including foreign language if required)
Foreign Language requirements for doctor's degrees Determination by department, subject to approval by Graduate Council	Foreign Language requirements for master's degrees At the option of departments
Theses and dissertations Level of performance Degree of consent Final approval	Master's committees (comprehensive examination plan) Appointment Responsibilities
	Normal progress and upper time limit for completion of degree requirements

Constitution of Doctoral Committees

Considerations

i. Should a faculty member have any special qualifications for assignment to examining committees for doctoral degrees, and if so, what qualifications?

ii. Should such qualifications be determined on a campus-wide basis or not?

iii. Is the experience of having acquired the pertinent degree a necessary or desirable asset in an examiner?

iv. Is there any danger that, say an Acting Assistant Professor, who may be embattled with his own Ph.D. committee at another university, might be prejudiced by his standards? In other words, should a faculty member be required to hold the degree about which he votes?

v. Should a faculty member who has never taught a graduate course be a voting member of a committee?

Alternative Solutions

i. Allow departments to constitute committees without restriction.

ii. Assert minimum campus qualifications for membership without exception.

iii. Assert minimum standards and empower the Graduate Dean or his deputy to allow exceptions, with unusual cases, at his discretion, to be referred to the Council or its Committee on Courses and Instructors.

Recommendation

The Council should assert the minimum campus standard that normally a voting member of an examination committee should himself hold the relevant degree, or, in the absence of that degree, hold tenure rank and/or have been properly authorized to offer graduate courses. [In effect, this would automatically make eligible for membership all but most Acting Assistant Professors, certain Visiting Professors, and strictly research staff without the pertinent degrees (s)]. Exceptions should be at the discretion of the Graduate Dean or his deputy, with strong appeals referrable in the first instance to the Committee on Courses and Instructors, which may in turn decide to refer the case to the Council as a whole.

The standards and procedures which the Council had left to departments to formulate became the subject of a detailed Graduate Division memorandum which also provided forms on which each department was to submit statements of the policies it chose to assert. This has meant, in effect, that the debate begun in the Graduate Council has been complimented by parallel deliberations in each department of the University.

To date, replies have been received from 51 out of a total of 58 departments. When these few remaining submissions come in, the actual text of the handbook will be drafted, circulated to the Graduate Council and departments for any amendments or corrections, and then finalized and distributed widely.

A secondary benefit of this handbook, incidentally, is the opportunity it affords to disseminate conveniently information about such related matters as the foreign language requirements in effect in each degree program (at UCLA each department or interdepartmental program sets its own requirements). This information will be contained in an Appendix, in table form. The Graduate Division also proposes to recommend that another appendix be included under the heading of "common courtesies and conventions" -- that is to say, a list of practices in connection with the examination process that are desirable but are not appropriately cast in the form of legislation. For example, a "courtesy" of great interest and benefit to graduate students is the practice, presently followed in some but apparently not in all departments, of affording an opportunity for students to examine the corrected paper containing the professors' notes and comments. Obvious though the desirability of this generally established custom may be, its inclusion in an appendix to this document will encourage and extend its observance.

In summation and in case other institutions might be interested at all, the UCLA do-it-yourself kit for a handbook on Standards and Procedures for Advanced Degree Examinations includes the following main parts:

---a strong preference for order over chaos

---time sufficient for a reasonably leisurely discussion by the authoritative body or bodies of the controversial issues involved

---a framework (such as a "white paper") that channels this discussion in the direction of specific policy decisions

---an appropriate division of responsibility as between the University and its constituent departments and programs

---a pragmatic rather than doctrinate approach to resolution of the issues

---ample room for flexible implementation

Note too that the words "standards and procedures" were no accident. One can't help but think that had the usual label "rules and regulations" been used instead, the whole project might have collapsed. Indeed, with our imaginary kit comes the general admonition in bold and prominent print: ASSEMBLE GENTLY!

-- FOURTH GENERAL SESSION, TUESDAY, March 7, 1967 --

presiding:
wesley p. lloyd

theme:

"SPECIAL PROBLEMS FOR RESEARCH ON GRADUATE EDUCATION:

graduate deans:	Milton C. Kloetzel University of Southern California
	Joseph L. McCarthy University of Washington
	George P. Springer University of New Mexico
consultants:	Ann Heiss University of California Berkeley
	Herbert Kells, Associate Dean State University of New York at Binghamton
	Clifford T. Stewart, Director Institutional Research The Claremont Colleges

Dean Lloyd opened the discussion with the following statement:

> "We are indebted to the consultants who yesterday gave basic criticism to the administration of graduate schools. It was for this purpose that they were invited to set the stage for this year's annual meeting. This meeting might have been entitled, 'the deans talk back.' Yet, the setting of this session is in a more constructive vein. Our purpose today is to provide an exchange of viewpoints between carefully-selected successful graduate deans and the consultants whose criticisms have emerged from institutional research regarding graduate education and its effective administration. Let's discuss then some major problems and their possible solutions."

The following summary was derived from notes taken by the Secretary in an attempt to record the essential points in the discussion. Individual speakers cannot, of course, be held responsible for these interpretations.

Dean Kloetzel opened the discussion with a consideration of values. He posed a series of questions such as how to create independence in the graduate student; how long should a graduate student be given guidance; and what is superficiality. As an example he referred to a series of twelve one credit "splinter" courses. He touched on qualifications for admission such as GRE, GPA and their evaluation. He indicated that the need for a foreign language should be considered and he questioned the compartmentalization of knowledge in graduate work both from the standpoint of its good features and its bad features.

Dr. Bunnell responded at the request of Dean Lloyd and he indicated that if institutional research includes consideration of values, all of these factors would be appropriate matters for consideration. He did not attempt to provide answers.

Dr. Heiss commented concerning the foreign language requirements that the Berkeley Study recommends a specific statement of need in each case if a foreign language is required. The Berkeley Senate will consider substitutions or a waiving of a foreign language if the individual departments agree that some other experience will be more profitable or if the student has had two or more years of foreign language as an undergraduate.

Dean Lloyd asked if this is a quantitative approach to values. Dr. Heiss responded that she preferred to consider it qualitative.

Dean Lloyd then asked Dean McCarthy for his comments on values.

Dean McCarthy responded with the question "Where should we be going?" The aspirations of institutions, students and faculty are considered in an atmosphere of change and institutional research should determine where we are, look ahead to the future, and guide further development. He referred to four or five interest groups at the universities which are concerned with these matters. These include the departmental unit - professional fields as distinct from departmental research - the trustees and the public. The University of Washington provides an annual report from the graduate office to the graduate faculty and this report consists mainly of data tables. These serve as a basis of conversation concerning the above questions.

Dean Springer expressed agreement with the annual report idea and suggested further that each should include a set of recommendations.

Dr. Kells referred to the initiation of change and the general lack of student involvement in change. He suggested that there should be a mechanism for student reaction to problems.

Dean McCarthy referred to Dr. Heiss' comment that if there had been a graduate student organization at Berkeley in 1963-64 there would have been an "explosion" then. He indicated that the central conception or unit of consideration is the field. At-large concerns are secular. He assumed that students and faculty in a department should be communicating. He asked if there was information in the Berkeley Study broken down by departments.

Dr. Heiss indicated the statistics were available by departments, but were not analyzed in this way. Some departments have taken these data and analyzed them. Interview data proved especially helpful to the English Department.

Dean McCarthy commented that results from the five divisions would be helpful.

Dean Kloetzel reported that a sampling of 200 students to determine the time devoted toward the doctorate showed an average of 6.2 years and that this gave him an excuse to discuss this point with the humanities fields where the usual time required for the degree is ten, eleven or even twelve years. He wished to learn what departments are bringing this average down to the 6.2 figure and to determine whether the departments showing a shorter period of time are doing a thorough job.

Dr. Bunnell stated that models are now available for computerization of university organization for long range planning.

Dr. Stewart commented that models have been used by many schools with or without computers and these schools have been accomplishing the same things in a less sophisticated way. He then referred back to the question of how to get students to work independently and suggested a look at a system which has been doing this for a long period of time. He referred to the Oxford-Cambridge system. He referred specifically to the procedure involving selection, tutorials, examinations at the end of the first year and then no further examinations until the student is ready to receive the degree. In this country some students feel that examinations are excessive; even disruptive, analogous to checking a plant by pulling it up by the roots frequently to see how it is doing.

Dean McCarthy asked the question "How do you build a model for a university?"

Dr. Bunnell commented that industry has used simulation for training of young executives. This gives the young executive an opportunity to examine the results of his decisions in a hypothetical situation prior to the time when the decision may result in profit or bankruptcy for the firm. University people have developed these systems for industry, but not for the university itself.

Dr. Heiss suggested that the structure of graduate education should be opened up by establishing programs that are not a collection of courses and requirements but coherent programs. For example, for the field of university administration, a student should take a minimum of courses and do a maximum of independent study, reading, observation, research, etc. on the problems of higher education.

Dean McCarthy asked "What is different; why can't it be done?"

Dr. Heiss responded that to her knowledge it is not being done in a great many institutions or at least not being reported. "Required" courses, hours, grading, etc. are still the norm.

Dean Springer asked if this would be related to a degree.

Dr. Heiss responded that all implications point toward a degree in this area. Education problems are massive including political, social, economical and others. The student should be exposed to the widest list of alternatives during his studies.

FROM THE FLOOR Dean Bragonier indicated that a survey of foreign language requirements indicate that the trend is toward leaving this matter to individual departments. A small minority is leading this change. He referred to the policy at Colorado State University which will delegate the responsibility to the department for one, two or more languages provided there is justification.

FROM THE FLOOR Dean Bruce commented on the significance of the student advisor relationship. He indicated that the graduate school should be concerned with how to make this work well.

Dr. Heiss suggested that the graduate department should provide the beginning student with a handbook to explain the program, requirements, facilities, policies, and regulations, as well as the procedures for selecting a sponsor, the research committee, etc.

FROM THE FLOOR Dr. Cockrell pointed out that Berkeley is increasing departmental autonomy with respect to foreign language through advisors appointed by the department. He stated that there is a problem in getting a graduate advisors' handbook published over a period of five or six years. Objections to a handbook have been based on the need for more flexibility in the procedures.

Dean McCarthy indicated that at his institution the graduate school has a coordinator of student affairs who is concerned with such matters.

FROM THE FLOOR Dean Lemme asked if it is the responsibility of the graduate dean to do all this.

Dr. Stewart asked for a show of hands of the graduate deans present where the foreign language is under the jurisdiction of the foreign language department. The majority of the individuals present indicated that this is the case. He suggested that by placing the responsibility for requiring a foreign language in the hands of the department the value of the foreign language requirement to the department will become clear.

FROM THE FLOOR Dr. Bragonier commented that institutional fellowships awarded to good departments provides an effective lever for improvement.

Dr. Bunnell pointed out that one will accept criticism if he feels that there is room for improvement and that this is the prime function of institutional research.

Dr. Heiss suggested that a postdoctoral student could be assigned to institutional research and that this could be done in individual graduate school offices.

FROM THE FLOOR Dr. Davis commented that an electronic processing requires very great patience and perseverance.

Dean McCarthy pointed to the problem of getting imput from the university officers. This is often a major problem.

Dean Lloyd then summarized the problems that were brought out having to do with the responsibility of the graduate dean in doing a good administrative job.

-- FIFTH GENERAL SESSION, TUESDAY, March 7, 1967 --

minutes

"BUSINESS MEETING"

Chairman Thomas D. O'Brien called the annual business meeting to order at 10:30 A.M. Tuesday, March 7.

I The minutes of the Eighth Annual Meeting were approved as published in the PROCEEDINGS.

II The Treasurer reported receipts of $1,364.13 (all members paid up), expenditures of $835.48 and a cash balance February 28, 1967 of $1,961.52. It was moved, seconded and carried unanimously to accept the report.

III There were no standing committee reports.

IV On the recommendation of the Executive Committee it was moved, seconded and carried unanimously to grant membership in the Association to the following institutions:

University of Puget Sound	Tacoma, Washington
Pacific Lutheran University	Tacoma, Washington
University of Portland	Portland, Oregon
University of British Columbia	Vancouver, British Columbia
University of Calgary	Calgary, Alberta
California State College at Fullerton	Fullerton, California

V The Executive Committee presented two amendments to the constitution: the first amendment is to provide for membership of the immediate Past Chairman on the Executive Committee. The specific changes are as follows:

Article V. Organizations Section 3. Committees

Change the word five to six in the first line.

Insert the words: immediate Past Chairman following the words Secretary-Treasurer in the second line.

The second amendment provides for a change in the title of Chairman and Chairman-Elect to President and President-Elect respectively.

It was moved and seconded to approve these amendments, but since two thirds of the membership is required to pass a constitutional amendment it is necessary to conduct a vote by mail to supplement the 34 members in attendance who voted aye. (This was done and 27 additional affirmative votes were tabulated by March 31, 1967.) The amendments are approved.

VI. The Resolutions Committee, consisting of Deans Louis D. S. Smith, Emil Lucki, Kenneth M. Rae and Melbourne Jackson (chairman), presented the following resolutions:

1. The resolutions of the Council of Graduate Schools concerning accreditation of graduate education, distributed to the WAGS membership as minutes of the Executive Committee meeting of 26 September 1966 and recommended by them, are presented for acceptance (MSC):

BE IT RESOLVED:

a. That it is the conviction of the Joint Committee on Evaluation and Accreditation of Graduate Work that no group should undertake to accredit institutions with respect to their programs of graduate education unless it is responsible to an organization of the institutions themselves;

b. That the Joint Committee identifies two kinds of accreditation, i.e.,
   (i) General accreditation, which is accreditation of a total institution as evidenced by admission to membership in a regional association, and is understood to be an expression of confidence by the member institution of a regional association in an institution's purpose, resources, and performance, and
   (ii) Special (i.e., programmatic) accreditation, which is accreditation of a professional school or program within a particular college or university and may be granted by a national organization representing a single professional area, such as architecture, law, medicine, psychology, or social work primarily in order to assure that the purposes and accomplishments of the professional program meet the needs of society and of the profession;

c. That, in the opinion of the Joint Committee, the review and appraisal of graduate programs and work should be included as part of the over-all evaluation and general accreditation of a college or university and should be done only by a regional association;

d. That it is the conviction of the Joint Committee that special accreditation of particular graduate programs in a college or university should, in general, be avoided because it tends to force narrowness and conformity in graduate student experience and to retard graduate program evolution. In certain professional fields, however, special accreditation may be appropriate, but only provided it is conducted in those fields and by those organizations approved by the National Commission on Accrediting;

e. That, in the opinion of the Joint Committee, the granting of general accreditation should take cognizance of, but need not require, special accreditation of individual programs;

f. That representatives of the several organizations concerned with general and special accreditation are encouraged by the Joint Committee to collaborate, especially by coordinating campus visitations;

g. That the regional associations are urged by the Joint Committee to work toward further agreement in policies and procedures concerning general accreditation of colleges and universities;

h. That the Joint Committee does encourage the Council of Graduate Schools to work toward the further development and dissemination of general statements describing the characteristics of programs of good quality leading to graduate degrees.

2. WHEREAS, the absence of representatives from a number of distinguished member institutions is noted with disappointment, and

WHEREAS, the opportunity to exchange annually information and opinion is both desirable and essential to the continuing development and improvement of graduate education,

BE IT RESOLVED that all member institutions encourage and support attendance of their named representatives at the annual meetings of the Western Association of Graduate Schools. (MSC)

3. The WAGS views with concern proposed changes in deferment policies for graduate study under the Selective Service System. The Association urges study by the Federal government of the impact of proposed changes and consultation with the major organizations of graduate schools prior to initiation of changes in policies. (MSC)

4. The membership urges the officers and executive committee of the Association to develop factual information concerning President Johnson's intended action concerning non-deferment of "post-graduate" students and to take any action in the name of the Association as is deemed pertinent and desirable with respect to the proposed action of President Johnson. (MSC)

5. The Association compliments the Program Chairman and the conference participants for the preparation of written remarks prior to meeting presentation, and especially appreciates the instances where papers were duplicated and distributed to attendees.

In order to maximize discussion and participation, and take advantage of the relatively small groups attending WAGS meetings, it is urged that this procedure be continued and extended. Papers having unique significance or those presenting data in detail should, where possible, be made available to the attendees either by mail prior to the meeting or upon initial registration. Papers could then be presented orally in substance leaving additional time for discussion and comment. (MSC)

6. It is desired, in behalf of the membership, to express thanks and appreciation to those non-members of the Association who contributed in many ways to the success of the meeting, (MSC) namely:

President Thomas Hamilton, U of H
for the delightful reception

The East-West Center
for an informative visit

The consultants

The representatives of the Federal Agencies.

7. Also, in behalf of the membership, it is desired to recognize the very successful efforts of the Officers and Executive Committee of the Association during the past year, the excellent arrangements and program for the Ninth Annual Meeting, and especially:

Dean Thomas O'Brien - for double service
at both the Eighth and Ninth Annual Meetings

Dean Wesley Lloyd - for a program obviously
of great and specific value

Dean Wytze Gorter - for excellent local arrangements

Dean Ray Jordan - for the difficult task of producing
proceedings of the Eighth Annual Meeting.

Dean Albert Taylor - for having in hand written
presentations for the Proceedings of the Ninth
Annual Meeting and for the promise to issue
these by 15 April 1967. (MSC)

8. BE IT RESOLVED in view of the limited resources available to the National Endowment for the Humanities , such resources should be directed toward the support of scholarly programs in higher education and should not be used to support programs in elementary and secondary education. Motion not seconded.

VII. Election of officers nominated by the Executive Committee.

Chairman-Elect - Wytze Gorter, University of Hawaii

Executive Committee Member-At-Large - H.W.Magoun, UCLA

It was moved, seconded and carried to cast a unanimous ballot for the above.

VIII. Recommendations of the Time and Place Committee consisting of Wendell Bragonier, Marvin Wilkening, Emmet Thompson and William Umbach, Chairman.

(1) That WAGS set locations and approximate dates for at least two years in advance.

(2) That locations alternate between a more-or-less central location with respect to the membership of the Association, and one more peripheral the next.

(3) That for 1968 the Association accept the invitation of Colorado State University, University of Colorado, University of Denver, Colorado School of Mines, and Colorado State College, to meet in Denver, either on February 25-27 or March 3-5, on the recommendation of the host committee. An invitation has been submitted for 1967, but was withdrawn in light of the invitation from Hawaii.

(4) That in 1969 the meeting be held in central California. Invitations have been received for 1968 from California College at Sacramento and California College at Fresno for a meeting to be held at Yosemite, and from University of the Pacific for a meeting at Stockton. If either of these invitations can be held for 1969, the location would be appropriate.

(5) The committee extends its appreciation for invitations to hold the 1968 meeting also at Missoula or at San Diego, and recommends that consideration be given to these locations in setting the location for meetings in subsequent years.

(The Business Meeting was recessed at 11:45 A.M. and reconvened at 4:15 P.M.)

IX. New Business. It was moved, seconded and carried to authorize the Executive Committee to study the new military draft policy and to take appropriate action in behalf of the Association.

The new officers were installed and the meeting adjourned at 4:25 P.M.

-- SIXTH GENERAL SESSION, TUESDAY, March 7, 1967 --

presiding:
robert h. bruce

theme:

"AID TO GRADUATE EDUCATION" --Special Agencies

address: "Postdoctoral Resident Research Associateships"

Claude J. Lapp
Director of Special Programs
Office of Scientific Personnel
National Research Council
Washington, D.C.

On June 17,1963, William F. Hoffmann, U.S. citizen, wrote a report on the Postdoctoral Resident Research Associateship which he had just finished. He said, "I found the year as an Associate exciting, rewarding and pleasurable. It was especially well timed immediately after finishing my Ph.D. work to provide a chance for collecting thoughts and starting new projects, and most important, the freedom, time, and stimulating colleagues which facilitate research." Dr. Hoffmann had received a Ph.D. degree from Princeton University one year before, had pursued the Associateship at the Institute for Space Studies in New York City for 12 months, and had produced one important publication.

Ronald J. P. Lyon, who received the Ph.D. degree in 1954 from the University of California at Berkeley, pursued an Associateship for 21 months and produced seven publications. Lyon appraised the Associateship as follows, "An extremely rewarding experience...I have no reservation in recommending this program to my fellow scientists."

What is the nature of the program of which Drs. Hoffmann and Lyon speak, and what were the circumstances that brought it into existence?

About 1950 the professional staff of the Office of Scientific Personnel, National Academy of Sciences-National Research Council, was examining the state of postdoctoral study and training in the United States. It seemed to them that the scientific community of the U.S. was in a period of transition; and thus, it was a time for evaluating -- a time for stock-taking, and looking into and planning for the future.

At the end of World War I such an evaluation resulted in a program of NAS-NRC Postdoctoral Fellowships financed by the Rockefeller Foundation extending from 1919 to 1952. This great program contributed to the advanced training and maturing of the brightest galaxy of stars in the history of American science.

About 65% of all NRC Fellows in Physics were engaged in the World War II effort. Of the 16 highly responsible for the uranium effort ending in the atomic bomb, 10 had held NRC Fellowships.

The evaluation by the Office of Scientific Personnel seemed to indicate that:

1. Postdoctoral training for the "best" was a "must".
2. The Rockefeller support was coming to an end.
3. The National Science Foundation had not yet been born, but it seemed like a good bet for the future.
4. In the twenties and early thirties, most NRC Fellows had been trained in Europe. However, this trend had been reversed, and many of the best laboratories in the world were in the United States. Among the laboratories where training at the postdoctoral level would be appropriate were many government-sponsored laboratories, with first-class equipment and well trained staffs. Up to that time these laboratories as a rule had not participated in postdoctoral training as such. These laboratories were well-supported and certainly had a responsibility to the scientific community in the field of postdoctoral training.

With this in mind, Dr. M. H. Trytten, the Director of the Office of Scientific Personnel, opened conversations with administrators at the National Bureau of Standards. Employees at the Bureau are in Civil Service, but Civil Service has a category of employees called "Class A" who are temporary non-career employees. No Government organization may have Class A employees without special permission. The details of a plan were formulated; the Governing Board of the Academy gave its consent; the Civil Service allotted 10 billets to the National Bureau of Standards; a contract was arranged, and a new program for Postdoctoral training was launched. The appointments were called "Postdoctoral Resident Research Associateships" and the first appointee started tenure on January 6, 1954.

The purpose of the Associateships was "to provide to young investigators of unusual ability and promise an opportunity for advanced training in basic research." The problem of an Associate must be in the stream of scientific interest and a part of the laboratory's on-going research program and must be so certified by the laboratory. Also, the Associate has no option as to place of pursuit of the appointment, except at a specified laboratory. This clear difference precluded the use of the word fellowship and took away special tax favors available to true postdoctoral fellows. For this program, the Academy-Research Council evaluated all applications and reported to the Bureau of Standards an ordered list of qualified applicants, Civil Service Class A non-career temporary appointments were then offered to the approved applicants as the names appeared on the ordered list. The stipend was the starting grade in GS-11.

As of February 20, 1967, the correctness of the thinking of Dr. Trytten and his staff at the Academy-Research Council seems to have been abundantly confirmed. Presently there are 43 Government laboratories with 136 Civil Service-approved billets participating in Associateship programs similar to the one started at the National Bureau of Standards 13 years ago. From 1961 to 1966 inclusive, for these training opportunities, there were 657 applications from which 547 were certified as qualified and 283 appointed. In 1967 there are 238 applications to be evaluated which is more than twice the average of the previous six years.

The awards described above were tailored to fit a new set of boundary conditions. Looking back, it is now apparent that a powerful new idea had been born. A way had been found to use the great Government-sponsored laboratories as a training ground at the most advanced levels. Because it became clear that the old idea of postdoctoral training, operating in a set of new boundary conditions, increased research result, stimulated the professional staff and enhanced the laboratories' image, laboratory administrators suggested the still newer boundary conditions of making Associateships available to Senior scientists (ones with a doctorate at least 5 years) and to non U.S. citizens. Operationally these two last changes necessitated that the Academy-Research Council take full responsibility for the full administration of the new programs. Thus there came into being Associateship programs known as Type II.

These Type II Associates are self-employed and work as partners with the most distinguished staff scientists.

In the Type II program, five important objectives have been identified:

a. To provide young investigators of unusual ability and promise an opportunity for advanced training in basic and applied research in natural sciences.

b. To enhance the exchange of scientific knowledge with other countries in the free world through the training of non-U.S. nationals.

c. To increase international good will through providing an opportunity for scientists of many nations to know each other intimately.

d. To add a powerful impulse to achieve important research results in the United States.

e. To provide a method for the dissemination of specialized knowledge from Government laboratories to university graduate training centers.

As the working rules for these programs have been hammered out on the anvil of experience, these associates (Type II) are self-employed, do not have special tax benefits available to bona fide fellows, receive stipend competitive with the market, have adequate moving and displacement expenses, have generous and flexible allowances for professional travel.

The appointments are normally for 12 months, are renewable to a maximum tenure of 36 months and about 10% of the Associates accept offers for employment at the end of their tenures.

Tenures less than one year are available. The length of the tenures being in general inversely proportioned to the distinction of the applicant. Split tenures of 3 or 4 months for each of two summers, are available for university professors. The boundary condition for these short tenures are carefully guarded. As of February 20, 1967, there were 150 Associates (Type II) on tenure with an annual payroll of over 2 million dollars per year. Seventy per cent of the Associates are foreign nationals representing 30 countries. The five (Type II) Associateship programs operating presently in the 16 laboratories are: The U. S. Army Natick Laboratories at Natick, Massachusetts; The Smithsonian Institution of Washington, D. C., Cambridge, Massachusetts; and the Tropical Research Institute, Panama Canal Zone; and 8 laboratories operated by the National Aeronautics and Space Administration--Goddard Space Flight Center, Greenbelt, Maryland; the Institute for Space Studies, New York City; Electronic Research Center, Boston; Langley Research Center, Hampton, Virginia; Manned Spacecraft Center, Houston, Texas; two at the Ames Research Center, Moffett Field, California; Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California; and the Marshall Space Flight Center, Huntsville, Alabama; the Feltman Research Laboratories, Dover, New Jersey; the Air Force Cambridge Research Laboratories, Bedford, Massachusetts; and Aerospace Research Laboratories, Dayton, Ohio.

The minimum stipend for the NASA laboratories is $11,500 with $11,000 for all the others. The stipends of all Senior Associates are set by an Academy Committee using a no-loss/no-gain principle. For a foreign award, the basis is a level of stipend which will match the salary of the individual's American counterpart.

Concerning Associates Type II:

Robert G. Roper (Australian) - Ph.D., University of Adelaide.
Age 30 when he began tenure; on tenure 30 months. 6 publications.
Appraisal: "I have found my participation in this program immensely rewarding, personally as well as professionally. The opportunities presented to meet the world leaders in so many spheres of scientific endeavor are without parallel:..."

Guido Pizzella - Assistant Professor of Physics, University of Rome.
Tenure of 12 months; 1 publication.
Appraisal: "I have had the opportunity of establishing fruitful relationships with both American and foreign scientists."

Tatsuzo Obayashi (Japan) - Sr. Associate, Professor of Geophysics at University, Kyoto on tenure 3 months; 3 publications.
Appraisal: "Associateship was a most wonderful opportunity. I had most valuable discussions covering a wide variety of fields with scientists at the Institute of Space Studies and Goddard."

His scientific advisor said that Obayashi was a stimulating member of the Institute.

George Contopoulos (Greece) - Professor of Astronomy, University of Thessaloniki; (Greece)- Sr. Associate; on tenure 6 months. 9 publications.

Appraisal: "The Senior Associateship has been very valuable to me. I had the opportunity to do much research on many different problems in Dynamical Astronomy. I also met many astronomers working in similar fields and we had useful exchanges of ideas."

Elihu Boldt (U.S.) - Ph.D., M.I.T., 1958. Professor of Physics, Rutgers University; tenure 16 months; 3 publications.

Appraisal: "The most attractive feature of this program is the flexibility that it encourages, due largely to its mode of minimal administrative encumberances. In my case, as in others I have noticed, this has resulted in some scientific excursions which might not have been made under more constrictive circumstances."

Appraisal: of Associateship Program by Dr. Robert Jastrow, Director of the Institute for Space Studies:

> "In my view, the NAS-NRC Associateship Type II program has been one of the most effective single factors among all the elements contributing to our theoretical research effort in the first years of the space program. It has yielded invaluable results, both in the specific contributions of the Associates and in the effect on the scientific work of our regular staff, which has benefited greatly from the stimulus of close contact with scientists active in many areas of research.
>
> "I believe this program, in its present form, to be one of the most successful efforts yet developed by the government for the enlistment of scientific talent in support of a major technical mission."

This paper is presented to acquaint WAGS with these new programs for postdoctoral training available at any level. They have been pursued with profit by faculty men on sabbatical leave.

address: "Training Activities of the National Aeronautics and Space Administration"

Frank D. Hansing
Chief of Training Division
Office of Grants and Research Contracts
National Aeronautics and Space Administration

Early in 1962, NASA established its Sustaining University Program. One of the major purposes of this program was to provide a mechanism whereby NASA might strengthen universities' capabilities in research and education so as to support NASA's requirements for their resources as they relate to the National Space Program. Under the auspices of this broad-gauge effort, NASA has supported training activities at more than 150 of the nation's leading universities. Specific elements of the program include: 1) predoctoral training grants to universities, 2) summer research institutes at NASA field centers for university faculty members, 3) summer institutes for selected undergraduates, and 4) special programs uniquely related to the requirements of the requirements of the space program.

In addition to the efforts undertaken in the Sustaining University Program, other projects closely related to university activities have been supported by NASA, which include an International Fellowship Program and a Resident Research Associateship Program.

NASA Predoctoral Training Program

In this activity, NASA awards grants to universities for the training of graduate students pursuing a doctorate in one of the space-related disciplines. The initial awards were for the support of 100 students in 1962. Each award provided these students with up to three years of support. The number of awards grew each year and in 1966, 1,335 new NASA trainees entered the program, bringing the total number of students presently in training to 3,681. One hundred and fifty-two institutions in the U.S. are now participating in the program.

NASA predoctoral training grants are made to universities, which select the students on the basis of their academic record and performance, and interests in space science and technology. An examination of the disciplines in which the NASA trainees are studying shows that about 50 percent are in physical sciences, 35 percent in engineering, 10 percent in life sciences, and the remainder in a few pertinent areas of the behavioral sciences.

To date, over 500 NASA trainees have received their Ph.D. in a space-related discipline. Examination of the initial career choices of these new, young, highly trained specialists shows that about 60 percent went to a university or on to postdoctoral study, 30 percent went to industry, and 10 percent went to a government laboratory or to the military. With an increasing dependency in the space program upon the talents of scientific and technical individuals who will utilize the new tools of space exploration, we are pleased to see the high percentage who have chosen academic positions, doing advanced research and continuing toward the development of tomorrow's scientists and engineers.

Training grants have recently been made for the support of 764 students to begin their graduate studies in September 1967. Preliminary indications are that the number of new starts will be less in 1968, as a result of a reduction in budget allocations.

NASA Summer Faculty Fellowship Program

In order to provide opportunities for young U.S. engineering and science faculty members to participate actively in the research activity of NASA, the Summer Faculty Fellowship Program was developed. During the summer of 1967, about 250 faculty will participate in a cooperative ten week program of research at a NASA field center and study at a nearby university. The following institutions are cooperating with NASA in this activity:

UNIVERSITY	NASA CENTER
U. of Alabama/Auburn U.	Marshall Space Flight Center
Case Institute of Technology	Lewis Research Center
U. of Houston	Manned Spacecraft Center
U. of Maryland/Catholic U.	Goddard Space Flight Center
Stanford U.	Ames Research Center
Virginia Associated Research Center	Langley Research Center
Yeshiva U.	Goddard Institute for Space Studies

In additon to these research programs, NASA is supporting three similar faculty programs in engineering design which will allow participating faculty to increase their knowledge, and enable them to organize multidisciplinary engineering design courses at their home institutions following completion of their summer at the NASA center. The faculty selected will be from diverse disciplines and participate as members of a design team, select a complex space system, and carry through a comprehensive design plan.

This summer, the program will be carried out at three universities adjacent to NASA centers:

Stanford U.	Ames Research Center
Auburn U.	Marshall Space Flight Center
U. of Houston	Manned Spacecraft Center

Both of the above types of faculty summer projects are for ten weeks duration. Faculty may return for a second summer of study and work. A total of about 300 faculty are expected to participate in 1967, 230 as researchers and 70 as design engineers. In this fashion, NASA hopes to acquaint and interest talented, creative faculty in the critical problems facing the national space program.

Summer Institutes for Undergraduates

For several years, NASA has supported a limited number of Summer Institutes of about six weeks duration for especially talented and promising upper-division undergraduates. These Institutes are designed to acquaint the students with some of the substantive problems in science and engineering that are associated with the exploration of space. In the coming summer, four such Institutes, for about 150 participants in total, will be sponsored.

UNIVERSITY	NASA CENTER
U. of California at Los Angeles (Space Biology)	Ames Research Center
Columbia U. (Space Physics)	Goddard Institute for Space Studies
U. of Miami (Environmental and Planetary Sciences)	Kennedy Space Center
U. of Southern California (Space Technology)	Jet Propulsion Laboratory

Students come to the universities for an intensive period of study. Later in the course, the students receive detailed briefings at one of the cooperating NASA field centers.

Other Special Programs

In addition to the efforts detailed above, NASA sponsors individual training programs of a unique or singular nature which are in support of the overall objectives of the space program.

Grants have been awarded to two universities for the purpose of providing graduate training to medical doctors wishing to work on the critical problems associated with manned space flight. Knowledge of human physiological limits is especially needed now that NASA approaches the possibility of long duration flights.

Another example of a special program is a grant to the Universi- of Virginia to operate a short course for graduate students and faculty wishing to acquaint themselves with the opportunities associated with instrumenting small rocket probes. This activity will actually take place at NASA's center for small rocket activity, Wallops Station, Virginia.

Resident Research Associateship Program

The National Research Council administers a program for NASA which is designed to allow postdoctoral and senior postdoctoral investigators to carry on advanced research at NASA field research centers. At present over 100 of these Fellows are engaged in research projects in the physical and life sciences or in advanced engineering technology at a NASA center. Details about the program's operation may be obtained from Dr. C. J. Lapp, Director of Special Programs, Office of Scientific Personnel, National Research Council.

NASA International University Fellowship Program

NASA participates in cooperative efforts with foreign space organizations in a program which is designed to bring foreign graduate students to one of a group of 24 U.S. universities participating with NASA in this effort. The foreign space agencies are expected to provide transportation to and from the U.S., plus a per diem allowance, while NASA pays local expenses and a cost-of-education allowance to the universities. There are now approximately 50 foreign students in the U.S. who are associated with this international cooperative program.

address: "Institutional Support Programs of NSF"

H. E. Page
Deputy Associate Director
(Institutional Relations)

It is indeed a pleasure to meet with the Western Assocation of Graduate School Deans again. I seem to remember that there was a time when travel restrictions -- both state-wise and fund-wise -- dictated the location for meetings. I am glad to see your expanded horizons!

When I met with you last I was able to report on several programs of the Division of Institutional Programs. Two recent events have happened to show that NSF has expanded its horizons also.

1) A new position -- Associate Director (Institutional Relations) has been created and is filled by Dr.Louis Levin whom I am sure some of you know as a former employee of the NSF or as Graduate Dean of Brandeis University. I now serve as his Deputy.

2) Two new programs which are aimed at institutional support have been recently announced. They are the Departmental Science Development Program and the College Science Improvement Program. The latter is administered by Dr. Fontaine who is with us today, and he will outline this program for you. In addition, the former Science Development Program has been redesignated the University Science Development Program and is limited to Ph.D. degree granting institutions.

I will in the following moments make only brief statements concerning each of the four programs now being administered by the Associate Director (Institutional Relations). This hopefully will leave time for questions which I will attempt to answer. Dr. Fontaine is here to back me up when they get complicated.

I. Graduate Science Facilities Program

The Graduate Science Facilities Program was established to meet the need for new, renovated, and expanded facilities occasioned by the rise in graduate training and research, the changing aspects of science, and the need to replace obsolescent space.

Graduate institutions may submit proposals on behalf of departments or other areas having at least an active master's program in the life, social, physical, mathematical, or engineering sciences. Funds are available on a 50 per cent matching basis to support the construction or renovation of laboratory facilities for graduate-level research and graduate training. With the exception of classrooms, all areas of a building devoted to graduate education are eligible for support. Additional funds up to 15 per cent of the amount awarded for construction and furnishings may be provided for the purchase of general-purpose laboratory apparatus.

The prime criterion for the award of grants is the present merit of graduate training and research of the departments involved in the proposal. The urgency of need for the facility, and the potential for maintaining high merit are also given strong consideration.

The Foundation's program is complemented by similar, although different, programs in the NIH, OE, and NASA. The four programs together supply approximately $93 million for graduate-level basic research facilities in the sciences for FY 1967.

The Foundation's Graduate Science Facilities Program was initiated with a budget of $2 million in FY 1960, reached a peak of $30 million in FY 1964, and then steadily decreased to its present level of $15 million for FY 1967. Since the program was initiated, it has made 842 grants for $150 million through FY 1966. In the last fiscal year (1966), 52 grants were awarded for a total of $25 million. It appears that for the present fiscal year (1967), the program will make about 55 grants for $15 million.

Grants have been distributed widely, with Nevada being the only state not receiving a grant.

II. Institutional Grants for Science Program

Institutional Grants are intended to give campus officials a means of maintaining and developing the quality of their existing science programs and of meeting needs or taking advantage of opportunities that are not afforded by other types of NSF grants. They are designed to give institutional administrators an essential margin of control over their research and instructional activities and to permit them to make innovations they consider desirable. The grants are thus intended to help uphold the principle of institutional autonomy.

Grants are made annually to colleges and universities receiving from the Foundation during the preceding year grants for basic research, undergraduate research participation, or research participation for college teachers. Beginning in FY 1968 the Foundation intends to extend eligibility to institutions participating in other Federal research programs.

Institutional Grants are computed by applying a graduated arithmatical formula to the total amount of the research and research-participation grants received by an institution during the preceding year. The formula provides 100 per cent of the first $10,000 of this base amount. Percentages are sharply reduced thereafter, and the largest grant is approximately $150,000.

Institutions receiving the grants may use them only for direct costs of science. They are otherwise free to use them for research, education, or both. Annual reports are required. These reports show that the principal uses of the flexible funds have been for the purchase of research and instructional equipment, faculty research projects, faculty salaries, library resources, and computer costs. Other uses include the renovation or construction of facilities, student stipends, travel, visiting lecturers, curriculum development, undergraduate research projects, and manuscript preparation and publication.

In its first year (1961) the program made 248 Institutional Grants totaling $1.5 million. In 1966 the number of recipients was 401, and their grants totaled $14.5 million. In 1961 the median grant was $1,220; in 1966 it was $16,900. The average changed from $6,035 in 1961 to $36,204 in 1966. It is expected that more than 450 institutions will receive grants in 1967, and that these will again total $14.5 million. During the first six years of the program more than 550 different institutions received grants amounting in all to over $50 million. The budget request for FY 1968 is $15 million, and it is expected that the contemplated extension to include research grants by other Federal agencies will increase the number of eligible institutions to about 550.

III. University Science Development Program

The University Science Development Program (formerly known as the Science Development Program) was announced in March 1964. The objective of the program has not changed -- it is to increase the number of institutions of recognized excellence in research and education in the sciences. The program's chief purpose is to accelerate improvement in science through the provision of substantial funds to be expended in accordance with carefully developed, long-range, master plans, designed to produce significant upgrading in the quality of the institution's science activities . Support under this program, although involving a small number of grants each year, is intended to materially assist those academic institutions judged to have visible strength among ongoing science programs, and obvious potential -- including adequate resources -- for moving upward to a higher level of scientific quality.

The evaluation process for science development proposals is comprehensive and extends over several months. A wide variety of factors are considered in evaluating each proposal, such as: feasibility of the proposed plan, quality of existing scientific capability; extent of anticipated improvement; ability of the institution to sustain a continued growth in its scientific potential; existing and potential effectiveness of the institution's science programs in serving the needs of the surrounding regions; and, ability of the institution to attract outstanding students -- undergraduate and graduate. Proposal reviewers and site visitors are selected from the Foundation staff and from the governmental, industrial, and academic communities. To date, evaluations have involved more than 100 professional staff of the Foundation. Almost 200 different university personnel have participated in site visits. Of these university personnel, a few more than half were top administrative officials (academic deans and higher).

A total of 89 proposals have been submitted to the Foundation for consideration under this program. To date 20 grants have been made totaling $75,082,000; 48 proposals have been declined, withdrawn by the institution, or transferred to other programs of the Foundation for action. The remaining 21 are in various stages of processing. One-half of the grantee institutions are state-supported (total of awards $43,256,000) and the other half are private institutions (total of awards $31,826,000). The percentage distribution of these funds by broad discipline category is: Behavioral Sciences 3.0 per cent, Engineering Sciences 13.9 per cent, Life Sciences 10.4 per cent, Physical Sciences 55.2 per cent, and Interdisciplinary Programs 17.5 per cent. Approximately 42 per cent of the interdisciplinary programs include various combinations of engineering sciences and physical sciences, and the remainder are interdisciplinary between less closely related disciplines. Grants have ranged from $2,390,000 to $5,000,000. The total funds granted have included 38.8 per cent ($29,129,100) for personnel, 32.0 per cent ($24,061,400) for equipment, supplies and other expenditures , and 29.2 per cent ($21,891,500) for facilities .

IV. Departmental Science Development Program

"The Departmental Science Development Program (DSDP) is designed to aid in improving the quality of research and educational activity in individual areas of science and engineering at institutions that are already engaged in such activities at the graduate level but have not moved into the top rank on a broad front." The program will focus its principal attention on graduate "departments" and its support will be made available specifically for strengthening graduate science -- the simultaneous upgrading of academic research and graduate science education. Normally, a specific area of science will coincide with a university department. However, when appropriate, an interdisciplinary entity formed by portions of two or more fields (or departments) may be the subject of a development plan.

Improving quality can be accomplished best by investing in quality people -- upgrading those already there or encouraging new staff to join the institution or department. Faculty improvement and a quality research base are central to departmental development. Associated with faculty improvement is the upgrading of graduate education, but this objective should not be pursued to the exclusion of improving undergraduate education. Consideration also needs to be given to supplying "adequate" equipment and supplies to the department, but only insofar as these needs are closely associated with the program plan during the period of transition. For the present there will be no support for new facilities, although minor remodelling that is critical to program objectives will be provided. There are about 430 institutions in the population of academic institutions from whence the DSDP will draw applications. Of this group 60 universities are not eligible, either because of their having already attained a "quality" status or because of their receipt of or recent application for, a University Science Development grant. A few more than 200 institutions have a reasonable chance in the competition for a USD grant. One hundred thirty (130) of these are the doctorate producers and about 70 are in the upper level of the master's degree producers.

There has been an enormous interest in the program. Up until the first of February we discouraged proposals pending the distribution of data worksheets. Now that they have been distributed we expect many applications. At least 120 institutions have sent representatives to NSF; there have been at least as many more telephone conversations with university representatives, and the letters of inquiry received to date number approximately 400. Thirteen million dollars are available for the remainder of fiscal year 1967; the President's budget recommends $10,000,000 for fiscal year 1968.

address: "Some Changes in National Science Foundation Programs Fiscal Year: 1967"

Thomas D. Fontaine
Associate Director (Education)
National Science Foundation
Washington, D. C. 20550

With Federal funds appropriated to the National Science Foundation for fiscal year 1967 remaining at the same level as that of the preceding year, perhaps it is surprising that some significant changes in programs have taken place. Certain of these changes can be attributed to a decision to provide increased support directly to institutions; other modifications are the result of decisions to reorient some activities from a somewhat random approach to solving certain science education problems to a more direct course of focusing attention on the school system per se.

by moving in these directions -- under a stabilized budget -- the Foundation has sought to strengthen its overall attack on the problems of science education and research, and to project developments over the next several years. In carrying out the necessary changes, we have endeavored to convey to the academic community the reasons for our actions but, as might be expected, we have not met with complete understanding in all instances.

To provide increased support for institution-oriented activities the Foundation initiated two new programs (the Departmental Science Development Program and the College Science Improvement Program) and hopes to announce a third one (National Sea Grant Program) this fiscal year. During the same period, certain established programs: namely, the Mohole Project (due to Congressional action), Graduate Education Development Projects, Summer and In-Service Institutions for Elementary School Personnel, and Visiting Scientists (Pre-College), were discontinued as formal programs. In other instances, programs were modified on the basis of such considerations as the impact of activities supported by other agencies and the "gold flow" problem.. These and other considerations are reflected in the Foundation's "changing times" which clearly reveal our necessary shifts in support emphasis. Some segments of the academic community have applauded certain changes while others have disagreed with some of our decisions and actions. In the latter case, perhaps we may have failed to communicate adequately with the academic community. Although the time available to me on this program is very limited, I should like to try to give you a better understanding of our changes and the need for change by highlighting recent actions that affect our relationship with you.

The most visible shift of increased emphasis on institutional problems is evidenced by the Foundation's recently created position of Associate Director (Institutional Relations), which is on the same level organizationally as the Associate Director (Research) and Associate Director (Education) positions. Institutional programs with major orientation toward post-baccalaureate institutions are now grouped together under the Associate Director (Institutional Relations). Included among them are some programs formerly under the jurisdiction of the Associate Director (Research), and administered by the Division of Institutional Programs. The recently announced Departmental Science Development Program is also assigned to this new office for institutional relations.

As you know, the University Science Development Program (formerly called Science Development Program) is designed to provide substantial assistance to a limited number of institutions which, though not yet among the very foremost in science, demonstrate definite potential for moving into the top rank. Usually such institutions already will have significant on-going programs of training and research at the Ph.D. level, with broadly distributed strength among a number of science disciplines which can serve as the base for proposed improvement. Support is provided in the form of relatively large grants for the improvement of academic research and science educational capability on an institution-wide basis. The Departmental Science Development Program has the objective of improving the quality of science education and academic research in specific individual departments or areas of science in graduate-level institutions not yet ready to move into the top rank on a university-wide basis.

In developing the Departmental program the Foundation decided to transfer a major component of the Graduate Education Development Projects program, under the Associate Director (Education), to the Associate Director (Institutional Relations). However, the responsibility for administering activities in the nature of special science education projects at the graduate level was left under the jurisdiction of the Associate Director (Education). In this connection, I should like to point out that each of the three Education Divisions has a Special Projects program where proposals which do not meet the guidelines of established science education programs in pre-college, undergraduate, or graduate areas my be received and considered on the basis of merit.

The newly established College Science Improvement Program that I mentioned earlier as being concerned with building institutional strength in science is focused mainly on the needs of four-year colleges. This program is administered by the Division of Undergraduate Education in Science.

The National Sea Grant Program, authorized under Public Law 89-688, is just getting under way. Its primary emphasis will be on support to institutions of higher learning for conducting programs concerned with training, research, and advisory services directly applicable to the exploitation of marine resources. One big hurdle we face is trying to initiate the program when the 89th Congress passed only an authorization bill -- which, of course, does not provide for funds. Our approach to this problem has been to request authority to re-program $1,000,000 of funds already made available to the National Science Foundation for fiscal year 1967. The President's fiscal year 1968 budget now before the Congress includes $4,000,000 for NSF to conduct the sea grant college program for the year. Since the National Sea Grant Program is authorized by a specific piece of legislation, not covered by the NSF Act of 1950, as amended, the Foundation has decided to establish an Office under the supervision of the Associate Director (Research) to administer the program. It is expected, however, that all segments of the Foundation will participate in its development.

Now I would like to say a few words about discontinued NSF programs. Much has been said and written about the Mohole Project and I, for one, will leave it as a matter for the historians of science to settle. It is important to note, however, that many projects in oceanography and related areas are being and will continue to be supported by the Foundation. As an intermediate phase of "Mohole-type" activity, the Ocean Sediment Coring Program -- designed to increase knowledge of the suboceanic crust of the earth through the study of long cores of unconsolidated sediments, taken from the upper layers of the earth's crust -- is continuing to receive NSF assistance.

The decision to discontinue the Summer and In-service Institutes for Elementary School Personnel and the Visiting Scientists (Pre-College) programs was based on full and careful consideration of the total support picture for pre-college education programs -- including U.S. Office of Education programs -- existing in fiscal year 1967 and the expectations for fiscal year 1968 and years immediately following. It is important, however, that I emphasize the Foundation's continuing interest in elementary school personnel and improved curricula needed to enable them to teach science and mathematics better. We are continuing major support of course content improvement projects at the elementary school level (as well as the junior high and secondary school levels), but our support for elementary school personnel has been shifted. Briefly, in the supplementary training of elementary school personnel the major shift is from the Institutes Program to the Cooperative College-School Science Program.

Some of the Foundation's reasons for making this change need to be stated. Many advances have taken place in the science and mathematics curricula, but a large number of school systems have been unable to take full advantage of the new materials available. Effective implementation of curriculum reform usually involves the advice of experts in selecting from the various alternative courses, examination of the short-term and long-term implications of change-over to a new curriculum, and availability of knowledgeable specialists to help train the teaching staff. These important elements are frequently not available to the school administration seeking to bring about immediate improvement on a large scale.

A school superintendent in a city of medium or large school population who wishes to revise the science or mathematics curriculum within the next school year is faced with a number of problems. After making a careful study of materials available, he decides to adopt new textbooks and to purchase the associated laboratory materials. Then he is confronted with the problem of training teachers in the philosophy and use of the new materials, as well as giving them the depth of background necessary to teach improved courses. To make an impact on the school system a large number of its teachers must be given the proper training and in such a way that the introduction of the new courses adheres to a reasonable timetable (this is especially critical in mathematics because of the sequential nature of the subject).

One solution to the problem is offered through the Foundation's Cooperative College-School Science Program which provides for creating collaborative arrangements between the teaching and administrative staff of a school system and the science faculty of a neighboring college or university. Experts in the subject matter of science and mathematics are thus made available for consultation and to conduct the teacher training needed by the local schools. Often follow-up over an extended period of time is necessary to insure that the transition to the new curriculum is being effectively carried out.

Because there is increasing interest in curriculum improvement among school systems, particularly those in medium and large cities, this program is recommended for expansion in fiscal year 1968. Some of the emphasis formerly given to teacher training activities that aimed at development of the individual teacher will now be devoted to the improvement of science curricula in specific school systems. At the elementary school level, teacher education activities in general will be carried out in the context of relating teacher improvement to specified efforts to up-grade a school system's curriculum.

Since the Cooperative College-School Science Program is locally oriented, the projects vary in nature and each one is designed to fit a particular local situation. Some projects are focused on intensive retraining of the teachers in one subject in order to implement a new course of study chosen by the school. Others may involve the adaptation of several new developments in the subject to fit the teaching strengths and student population of a particular school system.

We have also taken a close look at our programs for the supplementary training of secondary school teachers. Since 1954 the Foundation's institute programs have been designed to provide sound foundations in subject-matter knowledge for such teachers. These programs, aimed at individual teachers, focus on one or more of the following objectives:

a. remedial training for teachers who were initially ill-prepared;

b. updating of subject-matter knowledge for those who were once adequately prepared;

c. specific background training to equip teachers to teach newer curricular materials;

d. training in depth to enable teachers to meet new, higher standards (such as those represented by a master's degree); and

e. advanced specialized training for teachers and supervisors preparing for positions of leadership in science education.

The needs expressed in these objectives all continue to exist for large numbers of teachers. NSF-supported institutes will continue to provide appropriate supplementary training, meeting each need as required. However, in view of the fact that other training opportunities are now available to teachers, the national "mix" of various institutes and types of institutes will be modified. As indicated earlier, the Foundation's Cooperative College-School Science Program provides for both elementary and secondary school teacher training which emphasizes training for the teaching of newer curricular materials. Also, the States and localities will very likely make increasing use of U.S. Office of Education funds to improve the subject-matter competence of their teachers through appropriate local programs. But, resources in manpower and facilities available to school systems can only partially meet the objectives that I have cited. It is virtually certain that local efforts to provide remedial training for the initially ill-prepared teachers, the updating of training for those once adequately prepared, and the specific background training required for teaching newer curricular materials will require more trained leadership. Such leadership increases the need for (1) institutes which can provide training in depth to meet new, higher standards for teachers and (2) institutes which can provide advanced specialized training for leadership positions in science education.

In view of this changing picture of training needs, the Foundation has reduced its budget request for Summer Institutes by about 9%

for fiscal year 1968, with the expectation that there will be some reduction in the need for NSF-supported institutes for the initially ill-prepared teachers and for the updating of those once adequately prepared. Such reductions, however, are accompanied by an increased need for institutes that provide for training of teachers to meet new, higher standards and for specialized training for leadership positions in science education. At the same time, support for institutes aimed at training secondary school teachers to teach newer curricular materials, with special attention given to those teachers who are employed in school systems not large enough to mount their own training programs, will be provided by the Foundation.

Similar emphasis will be given to training in the teaching of newer curricular materials in In-Service Institutes conducted after school hours or on Saturdays throughout the school year. These institutes will also continue to stress the training that enables teachers to meet new, higher standards through programs offering work leading to the master's degree in science teaching (school systems could hardly be expected to conduct such programs).

The Academic Year Institutes for secondary school teachers are primarily directed to training in depth for meeting higher standards of teaching and to specialized training which equips teachers and supervisors for leadership positions in science education and thus creates a core of excellence and leadership. In this area, however, Title V-C of the Higher Education Act of 1965 provides a substantial number of Experienced Teacher Fellowships designed to fulfill very similar objectives. Our reduction in requested funds for Academic Year Institutes is coordinated with the Office of Education's request for an increase in funds under this Title so that the number of senior teachers temporarily withdrawn from teaching for training purposes will not create an undue burden on the school systems. It is hoped that essential leadership training will be adquately provided through the NSF-supported institutes stressing leadership training opportunities with the greatest potential for advancing the art of science teaching and through OE-supported fellowships emphasizing training in science leadership to meet current needs as seen by the school systems. In addition, the Foundation plans to place increased emphasis on the preservice training of teachers through the College Science Improvement Program and other experimental approaches.

Now let us turn to the growing need for improved science education in the colleges, an area of considerable concern to the National Science Foundation. It has become increasingly apparent that greater attention and support are required at the undergraduate level. Consequently, the Foundation looks to the College Science Improvement Program, initiated in fiscal year 1967, to provide for comprehensive efforts for improving the science capabilities of four-year colleges primarily. While the University Science Development and Departmental Science Development Programs have as their objectives the improvement of science education and academic research at the graduate level, the objectives of the College Science Improvement Program are to accelerate the development of science capabilities and to enhance the capacity for continuing self-renewal of predominantly undergraduate institutions. This program, which complements the two graduate-level programs, extends the institutional science development concept across almost the full spectrum of higher education.

Essentially the College Science Improvement Program seeks to assist predominantly undergraduate-level institutions in developing the full range of undergraduate education in the sciences and in expanding opportunities for undergraduates to become interested in scientific careers. This program will provide for improvement in faculty, subject matter, methods of instruction, curricula and individual courses, facilities, equipment, and teaching materials. The needs of individual institutions for each of these categories of improvement or combinations thereof vary widely. However, each institution applying for assistance under the program is required to develop a plan that is built upon its present strengths and oriented toward eliminating its particular weaknesses. To meet the requirements of the individual institutions, the development plans may include any activity or combination of activities calculated to improve the institution's capability for academic science and for the preparation of students for scientific careers, including careers in the teaching of science at elementary, secondary, or higher levels.

The College Science Improvement Program is designed to complement, rather than duplicate, the program authorized by Title III of the Higher Education Act of 1965. The latter program is directed primarily at the so-called "developing institutions", most of which grant fewer than 100 baccalaureate degrees in science over a three-year period, as contrasted with the College Science Improvement Program which does not include improvement of these institutions as a primary objective. Moreover, the authorization for assistance of these institutions under the Title III program is not limited to science, as is the Foundation's program.

In the summary, significant changes in the direction of NSF educational support programs that are already under way, and will be speeded up, are:

---giving relatively greater attention to the academic strength of school systems and institutions of higher education.

---according more discretion to institutional authorities in the development of programs for improving their curricula, facilities, faculty competencies, and student support programs.

---reducing, relatively, programs of support designed for individual teacher improvement which is not necessarily relevant to the needs of the teacher's school or college and especially improvement efforts involving the unspecialized elementary school teacher.

---broadening the scope of some programs in order to achieve a more desirable geographical distribution and a wider range of kinds of institutions eligible for support.

---giving greater emphasis to the improvement of instructional materials.

Inherent in this trend of changes is an increased focusing of the educational programs on education for careers in science and a gradual, reshaping of the Foundation's role in general education. Also inherent is a decrease in the heretofore large, annual repetitive programs and an increased effort to innovate -- to discover and test new ideas. Useful programs or projects resulting from experimental efforts can then be administered on a large scale in cooperation with other organizations or by other organizations. This general approach is designed to enable the Foundation to utilize to the greatest effect the flexibility given to it by its enabling legislation while, at the same time, keeping funding requirements to a minimum.

In closing, I would like to call your attention to our continuing interest in the computer area. In fiscal year 1958 the Foundation established the Academic Computational Facilities and Operations program to provide partial support to universities and colleges for the purchase, rental, and operation of equipment for their campus computer centers. This program is being continued, and in fiscal year 1968 we hope to broaden the scope of support to include particular emphasis on computers to develop more fully "educational" potential of such instruments.

The demonstrated power of computers in research applications -- as well as in many non-research uses in industry and Government -- has led to consideration of some experimental efforts in the use of computers to strengthen the teaching of a number of subjects. Early experiments seemed to show that computers can provide an opportunity for major improvements in the quality of education by permitting the introduction of much more sophisticated material and problems into course work. Although the technical and economic considerations involved in the use of computers for research are generally well understood, the fact remains that the educational, technical, economic, and administrative problems involved in using computers for educational purposes have not yet been sufficiently identified and studied.

Computers are already making a qualitative change in the education of a few favored students in a few institutions in this country. Pioneering institutions have shown that the use of computers adds realistic omplexity to learning in engineering, economics, and statistics. The computer enables the student or the scholar to deal with realistic problems rather than oversimplified models. By decreasing the time spent in the drudgery of problem-solving and in the analysis of data, the computer frees time that can be devoted to thought and insight. Partly, it enables the student to do old things more easily, but more importantly, it enables him to do things he otherwise could not. Thus, the potential value of this new tool has been experimentally demonstrated in a limited number of specialized situations.

It must now be determined whether or not these experimental results -- encompassing a limited number of students and faculty members in a few very advanced institutions -- can be achieved at acceptable costs in a wide range of differing institutions and in additonal courses and subjects.

The present use of computers in academic institutions is primarily focused on scientific problems and administration (accounting, enrollment, scheduling, and other management functions). Applications of computer technology to the educational programs of these institutions are now very limited, although it is in this area that a great potential exists for innovation and improvement.

The Foundation's expanded program in support of the use of computers would place primary emphasis on experimental and developmental projects within the environment of academic institutions. In order to best exploit computer technology to meet educational needs, every effort would be made to encourage cooperation between academic institutions and firms that are active in the development of computers and supporting systems.

I acknowledge that this review of some recent changes in NSF programs does not cover all the program changes or the details which may be of interest to you. However, I hope that it will contribute to a better understanding of certain changes and the Foundation's reasons for making them. In essence, these adjustments and innovations in NSF support programs are meant to serve the important purpose of giving the kind of assistance to institutions and individuals that best meets contemporary needs.

address: "Recent Developments at the National Institutes of Health"

Stephen P. Hatchett
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Introduction

This is the fifth time I have had the grand opportunity of meeting with you formally in such presentations as this, as well as in informal gatherings between sessions to discuss our mutual interests. I have garnered so much from meeting with you in the past that I look forward to these annual occasions.

"Public Health Service Reorganization"

On January 1 of this year the new organization of the Public Health Service became effective. Rather than discuss our new image, copies of an unofficial overview of our new set up are available. One major change that will have some impact on your operations is that the National Institute of Mental Health has been separated from the National Institutes of Health and is a discrete Bureau on par with NIH. For the immediate future, however, this should have no effect on application forms, central receipts, deadlines, and the like, for fellowships and training grants.

"Investigations Involving Human Subjects"

On February 8 of last year the Surgeon General made the first announcement on a new policy for investigations involving human subjects. The development of this policy took several years and was not the quick results of certain well publicized events preceding its issuance as the public press has wrongly surmised. It is applicable to dissertation activities for fellows and trainees as well as for research grants. It is also applicable to social and behavioral research as well as the typical clinical research. Since the above date, we have had to issue several additional documents clarifying and expanding the original policy; and I suspect we still have not been clearly understood by all institutions.

Briefly, this policy asks that the administration of the institution sponsoring the research be responsible for safeguarding the rights and welfare of the human subjects involved and to do this through committee review rather than permitting the researcher alone to decide these matters when he changes research protocol. Local mores and laws are best known at the local institution. The lay literature has been full of criticisms of some types of clinical research, of certain social and behavioral questionnaire techniques, violations of confidentiality of information obtained from the subject, and so forth. Our position is well developed by Harold Orlans in his article in Science of February 10; namely, we believe rather strongly that since it is "your" research -- yours should be the surveillance under minimum guidelines given by us. This leads me to the next topic I wish to discuss.

"Delegation Proposal"

For the last two years, seven institutions in the eastern half of the U.S. have participated in a pilot study to determine whether more local decisions and fewer NIH decisions can be made in the day-to-day operations in the research grant area. This study clearly demonstrated that local decisions are more quickly made, have more facts to back them up and simplify day-to-day operations. We are now expanding this study to about forty more campuses and hope more institutions will be participating. The second step in this expansion probably will be to bring training grant activities under the plan. As one example: a program director would get permission from his administration, rather than NIH, to buy an expensive piece of equipment not requested in his application but for which he has funds in his training grant or get permission from his institution for trainee travel to a scientific session rather than ask us to shift funds into this budget category from another. Where in the university this decision can best be made for training grants is not as easy for us to determine as for research grants, since in the latter situation a vice president for research or a research coordinator is staffed and equipped to handle these details. A training grant such as ours with total support of an educational program involves the graduate dean and the office of coordination for sponsored research. In many instances, the graduate dean is also director of research; so here delegation is easy to place. But what should we do when these activities are handled by different offices? Many training grants involve training of medical residents so that a different delegation seems called for here. I would welcome any recommendations you wish to give since NIH feels rather strongly that we should not be in day-to-day activities once a training grant has been awarded, but as yet we do not have a clear picture on how to modify current procedures.

"Other Policy Modifications"

In order to help keep the Gold Drain abroad to a minimum, NIH has had to drastically curtail sending fellows abroad. We have always asked that each applicant clearly show that his proposed training in a foreign laboratory is unique. Therefore, this additional curtailment is proving awkward.

Demands for training grants have been much greater than increases in appropriations. We, therefore, have had to impose an additional restriction on foreign student support. We will continue to honor present commitments to train foreign students currently enrolled as NIH trainees, but new trainees must all be U.S. citizens or noncitizens lawfully admitted for permanent residence.

In my last report to you, I mentioned we had a stipend study underway. This research showed the need to increase the basic stipends of predoctoral and postdoctoral fellows and trainees and to raise the fellowship allowance from $500 to $1,000 for postdoctoral and special fellowships. It is not likely, however, that we will be increasing predoctoral support in the near future. We are requesting an increase in the postdoctoral stipend and the fellowship allowance. In order to do this, however, we will have to decrease the number of individuals we will be supporting.

Last year I also reported that we were developing a new policy statement for training grants. The reorganization of PHS has delayed this. Then too certain considerations have had to be resolved or decisions made to leave them unresolved. I have just discussed some of these. But in addition, we are being asked by some persons to give full indirect costs for training grants. This will require applying the cost-sharing principles. To date, we prefer to keep the indirect cost allowances at 8 percent, realizing that you are cost sharing for the rest. For another example, at the termination of a research grant, we have the authority to give you the equipment purchased for that research. We have no such authority for disposition of equipment at the end of a training grant. We do hope this spring to publish a revised policy statement for research grants, and then we will tackle once more the document for training grants.

"Western State Participation"

As a sequel to last year's report on how the western states fare in our training support programs, I have some additional figures. Our current studies of training grants show that for the last three years the western states have received 17percent of the training grant dollars and are training 17 percent of the trainees. In other words, these percentages are the same for each of these years; and the same average is expected for this year. There has been a 2 percent increase in the fellowship programs from 21 percent of fellows in 1964 trained in western states to 23 percent now in training in your area. Within these three years, the number of awards in our research career programs to the western institutions has increased slightly -- 13 percent in '64 to 17 percent last year. The three tables below give the specifics for each of these three programs for the three years discussed.

NATIONAL INSTITUTES OF HEALTH SELECTED TRAINING PROGRAM DATA

Fiscal Years 1964 - 1966 (Dollars Given in Thousands)

RESEARCH FELLOWSHIPS

	1964		1965		1966	
	dollars	number fellows	dollars	number fellows	dollars	number fellows
U. S. TOTAL	20,312	3,202	22,821	3,510	24,919	3,893
Alaska	3	1	30	6	15	1
Arizona	22	4	74	11	67	11
California	3,034	486	3,684	564	4,012	622
Colorado	295	42	300	44	383	56
Hawaii	27	5	53	6	35	7
Idaho	6	1	3	1	5	1
Montana	18	3	45	8	38	7
Nevada	0	0	0	0	0	0
New Mexico	15	2	20	3	23	3
Oregon	189	32	237	39	353	54
Utah	118	20	171	27	227	34
Washington	414	61	516	77	604	84
Wyoming	0	0	6	1	18	3
Subtotal	4,141	657	5,139	787	5,780	883
Other U.S.	16,171	2,545	17,682	2,723	19,139	3,010

NATIONAL INSTITUTES OF HEALTH SELECTED TRAINING PROGRAM DATA

Fiscal Years 1964 - 1966 (Dollars Give in Thousands)

RESEARCH CAREER PROGRAM

	1964		1965		1966	
	dollars	number awards	dollars	number awards	dollars	number awards
U.S. TOTAL	19,792	1,126	22,427	1,199	25,746	1,343
Alaska	0	0	0	0	0	0
Arizona	20	1	24	1	26	2
California	1,178	72	1,500	80	1,955	120
Colorado	183	11	227	15	269	15
Hawaii	14	1	36	2	39	2
Idaho	0	0	0	0	0	0
Montana	30	2	46	3	51	4
Nevada	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0
Oregon	196	14	231	17	338	25
Utah	390	23	379	20	373	20
Washington	345	19	446	23	664	38
Wyoming	0	0	0	0	0	0
Subtotal	2,356	143	2,889	161	3,715	226
Other U.S.	17,436	983	19,538	1,038	22,031	1,117

"dollar totals may not add due to rounding"

NATIONAL INSTITUTES OF HEALTH SELECTED TRAINING PROGRAM DATA

Fiscal Years 1964 - 1966 (Dollars Given in Thousands)

RESEARCH TRAINING GRANTS

	1964			1965			1966	
	dollars	number grants	number trainees *	dollars	number grants	number trainees*	dollars	number grants
U.S. TOTAL	165,518	3,881	19,814	183,445	4,136	22,538	205,277	4,462
Alaska-	0	0	0	0	0	0	0	0
Arizona	321	11	48	385	13	54	454	15
California	15,185	321	1,916	17,575	360	2,371	20,500	406
Colorado	2,445	60	358	2,849	65	357	3,123	68
Hawaii	438	15	40	507	16	45	582	16
Idaho	11	1	0	58	3	0	85	4
Montana	103	3	10	130	4	10	171	5
Nevada	56	3	0	76	3	0	94	4
New Mexico	198	5	18	345	11	36	277	10
Oregon	1,923	48	226	2,234	51	249	2,401	55
Utah	1,825	42	188	1,857	43	216	2,085	43
Washington	4,390	86	489	4,614	84	559	4,771	89
Wyoming	25	1	0	50	2	0	50	2
Subtotal	26,919	596	3,293	30,680	655	3,897	34,593	717
Other U.S.	138,599	3,285	16,521	152,765	3,481	18,641	170,684	3,745

*trainees are on duty in following year
"dollar totals may not add due to rounding"